CITY OF HAMILTON

Proposal For An Arena/Stadium Feasibility Study

June 18, 1980

Kearney: Management Consultants

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PROPOSAL FOR
AN ARENA/STADIUM
FEASIBILITY STUDY

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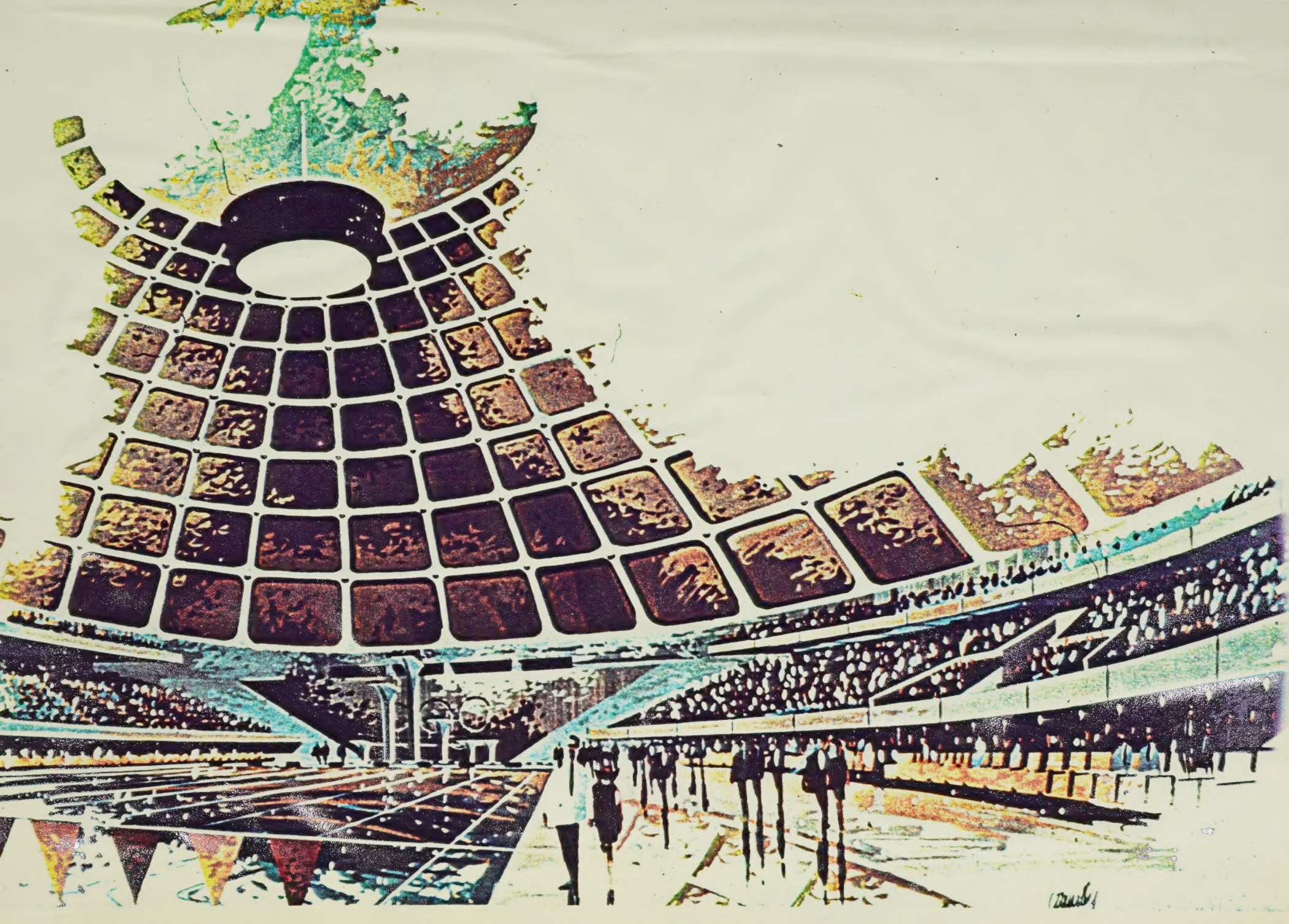

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Mr. J.R. Jones, Esq.
Secretary
Board of Control
City Hall,
Hamilton, Ontario

June 18, 1980

Dear Mr. Jones:

Kearney: Management Consultants Limited is pleased to submit this proposal in response to the City of Hamilton's Terms of Reference for a proposed study of an Arena/Stadium Feasibility Study.

The proposed study requires a sophisticated blending of diverse skills and experience for its successful completion. Besides Kearney's own Canadian resources, which are substantial, we have elected to draw meaningful technical support from several other exceptional sources. Kearney will assume complete responsibility for the successful management of this project and for the level of quality of its output. We are experienced in working with multi-discipline project teams and we assure you of excellent results.

Appended to our proposal is material describing Kearney: Management Consultants Limited. Also, appended are the resumes of key personnel from whom our project team will be drawn. In addition, we have enclosed material from the other firms from which we will draw specific technical support. The first of these, Parkin Partnership, Architects and Planners is well known in Ontario for its award-winning architectural designs. Parkin has extensive experience in conducting feasibility studies for arenas and stadiums.

Second is Trevor Garwood-Jones Architect, of Hamilton. Mr. Jones has designed a number of the principal public buildings in Hamilton, including Hamilton Place, Art Gallery of Hamilton, Convention Centre, Hillside Rackets Club, and the Ancaster Club. His intimate knowledge of Hamilton and its environs will be of invaluable assistance during the conduct of the study.

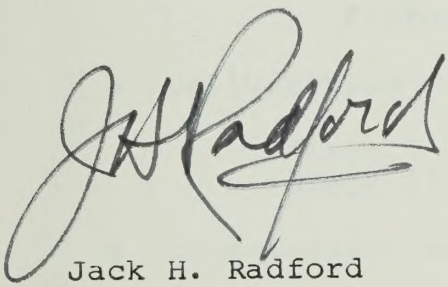
Third is De Leuw Cather Canada Limited, who are well known throughout North America as traffic consultants. Their input will be most significant, particularly in the study of the environmental impacts of the new facilities. As they have an office in Hamilton they are completely familar with the traffic situation in your city.

Fourth is Helyar and Associates, Quantity Surveyors, who will have a major input to all of the cost analyses that must be done during the study.

We believe that the excellent team that we have assembled ensures that the study will be completed to your entire satisfaction.

Kearney appreciates this opportunity to present our approach. And we look forward to making our contribution to the successful achievement of the Arena/Stadium feasibility study for the City of Hamilton.

Yours very truly,



Jack H. Radford
Managing Director

Kearney: Management Consultants Limited

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BACKGROUND

BACKGROUND

For several years, there has been strong public interest in Hamilton in the construction of an Arena. To the people of Hamilton, a new Arena would be a venue for capturing and promoting major sporting events and entertainment spectacles.

In 1976, The City of Hamilton commissioned two Arena reports. One dated July 9, 1976 was produced by a committee of City employees and was entitled "Report on Coliseum for City of Hamilton". It evaluated 12 possible sites and developed preliminary construction costs. It also contained information on comparable Arenas in Canada and the U.S.

The second report was produced by a consortium of consultants and was entitled "Hamilton Coliseum Economic Feasibility Study". It was sub-titled "An Analysis of Capital and Operating Costs and Potential Revenues" and was dated November 5, 1976. This report made use of site information from the first report, and it concentrated on four of the twelve sites identified in that report.

The City of Hamilton now wishes to conduct a new study that will go well beyond the 1976 studies. It will encompass the feasibility not only of a new arena, but also of improved stadium facilities. It will provide an analysis of the present and future needs of the community for arena and stadium facilities.

The terms of references which are included in the Appendix of this proposal, states in part:

- "The City of Hamilton should have Arena facilities suitable for major spectator events and, more recently, it has been brought to our attention that the Stadium Facilities should be expanded to provide for additional seats between goal lines to remain competitive withother major municipalities in Canada."

- "The City of Hamilton invites proposals from qualified consultants for a complete examination of all the pertinent considerations for the adequate and future needs of the community."

- "It is intended that this study would be exhaustive and complete so as to determine the present and future needs. In addition, the study is to provide the possible alternatives to meet those needs."

Kearney: Management Consultants Limited has formed a study team made up of professional staff from Kearney; Parkin Partnership Architects and Planners; Trevor Garwood-Jones Architect; De Leuw Cather Traffic Specialists; and Helyar & Associates, Quantity Surveyors, to respond to Hamilton's request.

We believe our study team has outstanding credentials to achieve the objectives of this study. Kearney is one of the largest and most experienced management consulting firms in the world. Our operations are international in scope and we trace our history to the earliest days of the consulting industry - 1926. Our Toronto office is the centre for our Canadian operations. Our partners in this study, Parkin Partnership, Trevor Garwood Jones, De Leuw Cather and Helyar are of similar reputation in their respective fields.

Our proposal for the assignment follows. The sequence of topics described are:

- Objectives and Scope
- Strategy
- Methodology
- Deliverables
- Organization and Strategy
- Timing and Fees
- Qualifications
  - Kearney
  - Parkin/Trevor Garwood Jones
  - De Leuw Cather
  - Helyar

OBJECTIVES

AND

SCOPE

STUDY OBJECTIVES AND SCOPE

Objectives

The objectives of the study are the following:

- To determine the feasibility of constructing an Arena capable of housing such events as N.H.L. and International hockey games as well as shows such as Ice Capades and Circuses. The Arena should be suitable for other events such as political rallies and trade shows.

- To determine the present and future needs of the community for a Stadium considering that the Ivor Wynne Stadium is deemed inadequate.

- To determine the financing arrangements of similar facilities in Canada and the U.S., so that the City of Hamilton may have a basis for approaching senior governments with a view to arranging for cost sharing.

Scope

The study team will consider several alternative approaches to satisfy Hamilton's present and future needs for Arena and Stadium facilities. These alternatives include:

- Upgrading the Ivor Wynne Stadium and building an Arena on a separate site.

- Building a new Arena and a new Stadium:

  - on separate sites
  - on the same site.

The study team will obtain information from a variety of sources, and these will include:

- City of Hamilton employees.

- City of Hamilton reports and records.

- Operators of Canadian and U.S. arenas and stadiums.

- Potential users of the facilities including show promoters, and sports league officials.

- Existing data in Kearney, Parkin, Jones, De Leuw Cather and Helyar possession.

The study will include analysis of the factors listed below, and will consider other factors that may be deemed significant.

- Market demand for the contemplated Arena and Stadium facilities.
- Capital Costs including:
  - Land acquisition and development costs.
  - Building costs.
- Financial analysis to determine probable cash flow from the facilities.
- Economic benefits to The City of Hamilton.
- Environmental impacts.
- Social impacts.
- Cultural impacts.

Our proposed strategy and methodology are described in the following two sections of this proposal.

STRATEGY

STRATEGY OF STUDY

The Consulting Team

The project, described in the Terms of Reference shown in the Appendix, will be carried out by a team of consultants. The team will bring to bear the skills and experience needed to address the major issues. We believe that the primary skills required for successful project completion are:

- The ability to accurately assess the demand for the proposed new Arena and Stadium.
- The skill to evaluate the cost of acquiring and developing land and of constructing the new facilities.
- The experience to undertake the financial analysis that will determine the return on investment in the new facilities and the required cash flows.
- The sensitivity to complete the evaluation of the impacts - social, economic, environmental and cultural - of the proposed new facilities.

The team that Kearney has formed to address these issues is made up of the following companies:

- Kearney: Management Consultants Limited, will assume the overall responsibility for the project. Kearney will also carry out the market demand and the financial analyses portions of the project. Our qualifications to conduct the study are described in the Qualifications section of this proposal.
- Parkin Group: Architects and Planners, in association with Trevor Garwood Jones, Architect, will carry out the analyses of land acquisition, sites and building concepts. The qualifications of Parkin and Trevor Garwood Jones to conduct the study are included in the qualification section of this proposal.
- De Leuw Cather. Traffic Specialists - will carry out the analyses of the transportation and parking demands of all sites.
- Helyar and Associates: Quantity Surveyors - will carry out the analyses of costs associated with sites and buildings.

The evaluation of the social, economic, environmental and cultural impacts of the new facilities wil be jointly evaluated by both Kearney and Parkin/Trevor Garwood Jones.

Sequence of the Study

In Figure I, we outline the sequence in which the project will be conducted. The market study will precede all other work because it determines both the potential income and requirements of the proposed new facilities. Based on the findings of the market study, we will determine the size of the facilities and the extent of the ancillary equipment that is required.

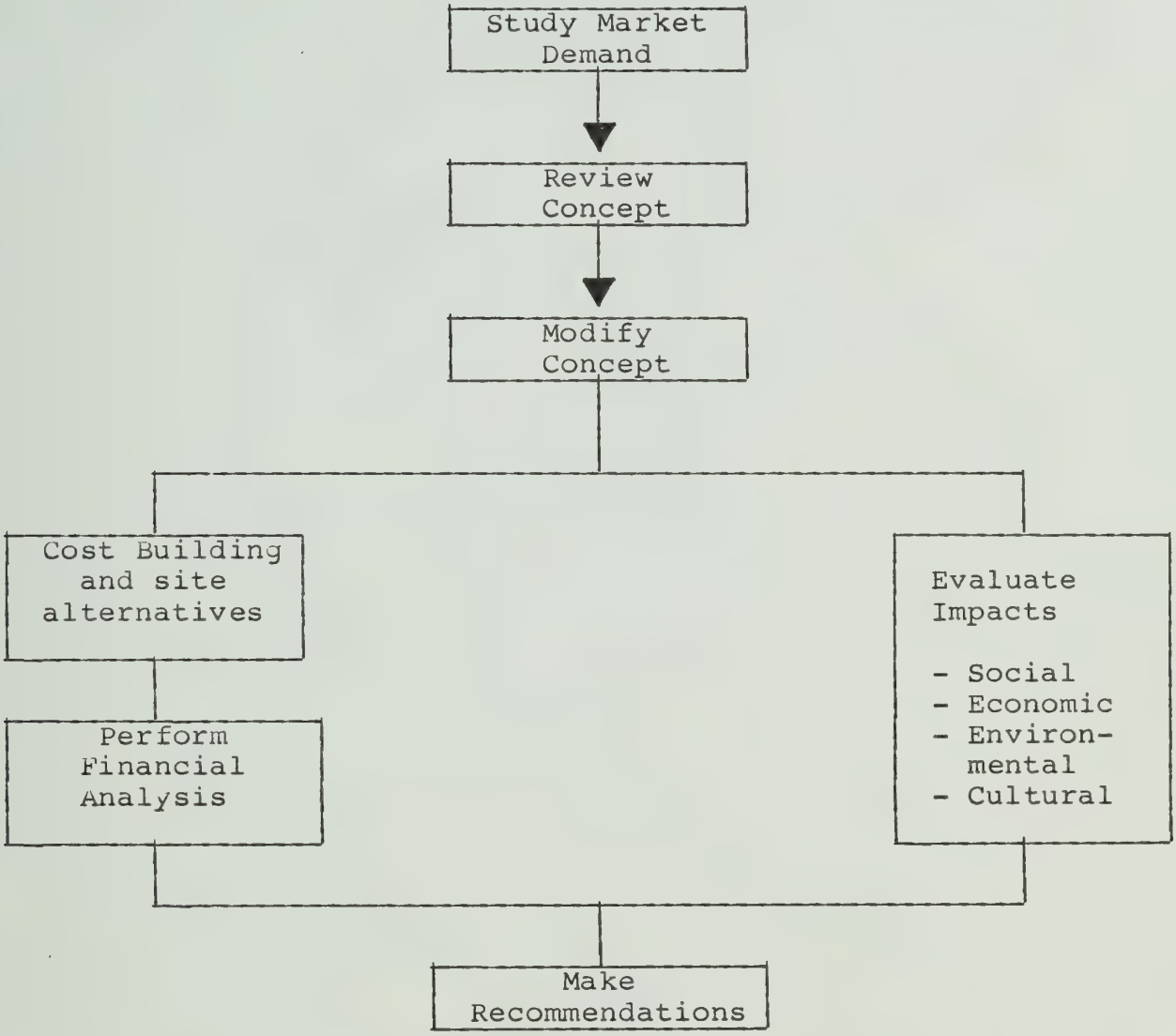
It is of vital importance to evaluate proposed facilities that are designed to respond to anticipated demand. Erroneous conclusions can be drawn by evaluating proposed facilities that do not meet proven needs.

Following the marketing study, the project will be conducted in two parallel thrusts. One thrust will concentrate attention on a number of satisfactory sites and will result in the financial analysis of the facilities. The other thrust will evaluate the social, economic, environmental and cultural impacts of the new facilities.

In the next section, we describe the methodology we will use to conduct the project.

CITY OF HAMILTON ARENA/STADIUM FEASIBILITY STUDY

FIGURE I: STRATEGY OF STUDY



METHODOLOGY

METHODOLOGY OF STUDY

In Figure 2, we outline the methodology that we will use to conduct the project. The project will be undertaken in two stages.

Stage 1: In the first stage we will:

- Analyze the market demand for the new facilities.
- Determine the size and nature of the facilities needed to satisfy that market demand.
- Determine the land acquisition and development costs and the building costs for the new facilities.
- Project the financial return obtainable from the investment in the new facilities and assess the required cash flows.
- Project the social, economic, cultural and environmental impacts of the new facilities.
- Propose a short-list of sites.

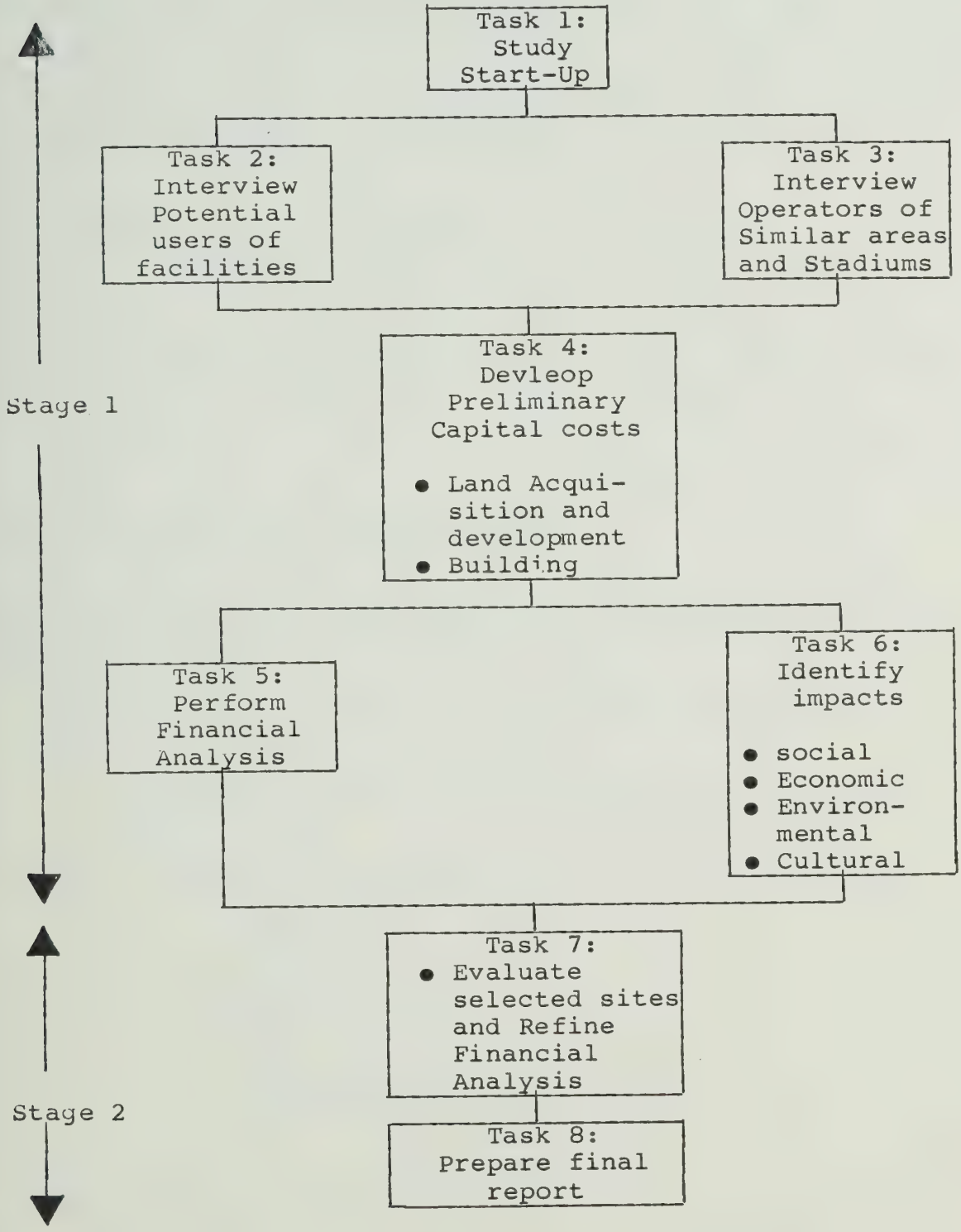
Stage 2: In the second stage we will:

- Concentrate our attention on a short list of preferred sites that will satisfy the various Arena and Stadium combinations. We will rank sites in order of desirability.
- Develop further the analyses formed in Stage 1 as they relate to these sites, such as capital costs, financial analysis, social, economic and environmental impacts.
- We will develop concepts for the design and detailed suggestions for the operation of the new facilities.

In the sections that follow, we describe how we will carry out the various tasks shows in Figure 2.

CITY OF HAMILTON ARENA/STADIUM FEASIBILITY STUDY

FIGURE 2: METHODOLOGY OF STUDY



Task 1: Study Start-Up

We will start the study with a series of discussions with City of Hamilton officials who are directly involved with the project. The purpose of these discussions is to confirm the objectives, scope, and methodology of the study. In these discussions, we will also schedule review and progress meetings and make necessary arrangements for working with selected City officials and obtain pertinent data and reports.

The outputs from these discussions will include:

- A schedule of review and progress meetings.
- Any announcement to be circulated to concerned City employees and made available to the general public.
- Requests for pertinent data and reports.

Task 2: Interview Potential Users

To establish the market demand for the Arena and Stadium facilities, we will interview a number of likely users. For the Arena these will include:

- National Hockey League and Junior A Hockey League officials.
- Canadian Football League and North American Soccer League officials.
- Promoters of large-scale events such as:
  - Boxing
  - Wrestling
  - Ice Shows
  - Rock Concerts
  - Circuses
  - Industrial and Trade Exhibitions
  - Conventions
  - Indoor Track and Field Competitions

From these interviews we will determine:

- The seating capacity required for the two buildings.
- The ancillary equipment such as lighting, sound systems and scoreboards that will have to be provided.

- Other facilities such as dressing rooms, rehearsal areas and offices that will be required.

The above factors relate directly to the size of the buildings, and hence the construction, maintenance, and operating costs.

In addition, we will determine:

- Revenue factors and arrangements
- Special considerations
- Probable demand

These factors will provide the basis for further analysis and projections.

Task 3: Interview Operators of Similar Arenas and Stadiums

Since 1976, when Hamilton conducted its earlier studies, a number of comparable Arenas and Stadiums have been built. For example, new facilities were built in Edmonton for the Commonwealth Games; and the Meniscus Arena was built in Halifax. Recently, the CNE Stadium was expanded. We will interview the operators of new facilities in Canada and the U.S. to obtain a variety of information. Information needs include:

- Construction Costs.
- Number of usage days per year including set-up and take-down time.
- Kinds of events.
- Attendance and revenues.
- Operating costs.
- Economic, environmental and social impacts resulting from these comparable facilities.

The above information will be valuable in predicting the feasibility of an Arena and Stadium in Hamilton. From the operators of Canadian arenas and stadiums, we will identify how the funds for construction were raised. We will identify what portion of the cost was borne by various levels of government, and whether any private funds were available.

Also, as part of this task we will assess the probable mix of attendees to various events broken down between Hamilton and district residents and people from out of town. Using this information, we will identify the probable needs of both groups in terms of:

- Accommodation
- Dining
- Transportation

We will identify whether existing facilities are adequate, and if not what additional facilities are needed.

Task 4: Develop Preliminary Capital Costs

(1) Land Acquisition and Development costs. Based on the findings of the Market Study as to the appropriate size of the new facilities, we will determine the land area needed to accommodate:

- A new Arena and Stadium on the same site.
- A new Arena and Stadium each on separate sites.
- A new Arena and an upgraded Ivor Wynne Stadium.

The land area required will determine the suitability of available sites. By available sites we mean:

- Those sites identified in the 1976 City of Hamilton Study that are currently still available.
- Other sites that were not considered in the 1976 study or that have since become available.

For the sites that are deemed to be suitable, we will establish a set of criteria such as:

- Availability of municipal services.
- Accessibility to public transport and to road services.
- Topography of sites and placement of the facilities on the sites.
- Compatability with neighbourhood activities.
- Other relevant factors.

For each criterion, we will assign a weighting factor that will allow us to rank the sites in order of desirability. From the ranking we will select a short list of, say, four sites and for each of them develop costs for acquisition and development in Stage II.

(2) Building Costs. Based on information gathered from the operators of comparable arenas and stadiums and from current construction cost data, we will develop preliminary building costs for:

- A new Arena and an upgrading of the Ivor Wynne Stadium.
- A separate new Arena and Stadium
  - On the same site
  - On separate sites

The combined land and building costs will establish the total capital costs that will likely be incurred for each of the alternatives considered.

Task 5: Financial Analysis

Using the market and development data gathered in the preceding steps we will develop pro-forma financial analyses. The analyses will cover each of the different alternatives to be considered. Some of more important factors to be considered include:

- Revenues from all likely sources.
- Operating costs.
- Maintenance costs.
- Sources of funds for construction of the facilities.
- Annual operating grants from senior levels of government.

The financial analyses will show whether the new facilities will be self-supporting and the amount of financial support that will be needed from the City or other Government sources, to be self-

supporting. The projected statements will cover a five year operating period.

Task 6: Identify Social, Economic Environmental and Cultural Impacts of the New Facilities.

1. Identify Social Impacts. Some of the social impacts to be considered are:

- Should the facilities be privately or publicly owned? This will depend on the probable cash flow from the facilities. If the cash flow will be positive and provide an adequate return on investment, then private enterprise will be interested in owning the facilities. If there will be inadequate return on investment or a negative cash flow, the facilities will have to be publicly owned.

- Will the general public or particular interest groups accept the new facilities? Very likely there will be objections from some quarters to any of the proposed alternatives. We foresee the need for special meetings of City Council at which the public may express its views. There are likely to be Committee of Adjustment meetings and Ontario Municipal Board Meetings before work on the facilities can start. All of which should be incorporated in the proposed timetable for project development.

- What will be the impact on amateur sport? The Arena probably could be rented to local amateur hockey, baseball, and lacrosse teams for practice and games. The Stadium might be used by amateur football, baseball, soccer and rugby teams. We will contact the officials of the various leagues to determine the degree of their interest in renting the facilities.

- What will be the impact on recreational opportunities? At present, Hamilton does not have an N.H.L. hockey team, an N.A.S.L. soccer team, or a major league baseball team. The 1976 report shows that there is a population of about 6,000,000 within a 50-mile radius of Hamilton. It may be that one or more of the sports bodies mentioned would offer a franchise in Hamilton if adequate facilities were available. We will attempt to identify the problems and opportunities associated with all major social impacts of the new facilities.

2. Identify Economic Impacts. The economic impacts of the proposed new facilities include the following:

- Municipal, provincial and federal government taxes that will be generated by the activities of the new facilities.
- Salaries and wages paid to athletes and officials who will reside in Hamilton and the surrounding district if major league sports teams will be set up to use the new facilities.
- Greater use of hotels, restaurants and transportation services by residents and visitors.
- Additional shopping in Hamilton by residents and visitors.

From our market study, we will be able to quantify the economic impacts that other new arenas and stadiums have had on their municipalities. We will extrapolate these to the new Hamilton facilities to arrive at the overall economic impact.

3. Identify Environmental Impacts. Large arenas and stadiums have great impacts on their local environments. Some of the factors to be considered are:

- How much space will be needed for parking automobiles? Parking for automobiles will use up much more space than will be used by the buildings themselves. This has serious consequences because parking may not be the highest and best use of the land, especially in downtown areas.
- What public transit is presently available or could be made available. The patrons of major arenas and stadiums frequently use public transit to avoid traffic jams associated with such facilities.
- What kind of traffic loads will the new facilities generate on the existing raod network? What will be the impact of these loads?
- How compatible are the new facilities with the present development of the surrounding area? Will they enhance the development or detract from it?

- How compatible are the new facilities with the future development of the surrounding area? Will they encourage future development or discourage it?

Some of these factors are quantifiable and we will develop dollar values pertaining to them. Others are qualitative and for these we will give our professional opinions based on our experience.

4. Identify Cultural Impacts.

We understand that the limited facilities currently available in Hamilton preclude the presentation of certain kinds of shows. For example, rock music shows that would attract a large attendance for a single performance cannot be housed. Such shows could be housed in a suitable stadium. Shows such as the Ice Capades and Ringling Circus that would attract large crowds for several days in a row, need a suitable arena. If facilities for these kinds of shows existed, the cultural life of Hamilton would be enriched.

Our study will identify the degree of interest on the part of the promoters of such shows and hence the extent of the impact of the new facilities, on cultural life.

Task 7: Refine Analyses of Stage 1 for a Short List of Preferred Sites.

The above tasks will all be done during Stage 1 of the study. In Stage 2, a short list of preferred sites will be drawn up from all the sites considered. The sites on the short list will be determined by the insights obtained from working through the tasks of Stage 1.

For the preferred sites, the market, financial and impact analyses of Stage 1 will be further refined.

We will also produce concepts of the design for the new facilities and detailed suggestions for their effective operation.

Based on this analysis we will identify the feasibile alternatives available to the City of Hamilton and recommend an appropriate course of action.

In the next section of this proposal, we describe the deliverables that we will produce for each of the tasks listed above.

DELIVERABLES

DELIVERABLES OF STUDY

Stage 1:

- Estimate of market demand for the new facilities by type of user.
- Estimated capital costs for land and buildings for each alternative.
- Financial analysis of each of the feasible alternative arrangements of facilities.
- Quantitative and qualitative estimates of the social, economic, environmental and cultural impacts of the new facilities.
- Description of funding and cost-sharing arrangements of comparable facilities in Canada and the U.S.

Stage 2:

- Detailed analyses of Stage I factors as applied to a short list of preferred sites.
- Detailed suggestions for operating the proposed new facilities.
- Design concepts for the new facilities.
- Identify appropriate funding arrangements.

ORGANIZATION AND STAFFING

STUDY ORGANIZATION

According to the Terms of Reference, a Committee made up of elected officials and City staff will oversee the progress of the study. In Figure 3, we show a proposed study organization in which the above-mentioned Committee is referred to as the Steering Committee. We propose that Mr. Jack Radford, Managing Director of Kearney's Canadian operations, be a member of this Committee. His presence on the Committee will ensure complete and effective liaison between the Committee and the study team. The Steering Committee will be responsible for the overall conduct of the study including study direction, timing and quality.

Throughout the study, the Steering Committee will be kept fully informed about progress achieved by the study team. There will be review meetings at regular intervals as shown in Figure 4 to inform the Steering Committee about the progress of the study.

Project Management

The project manager will be responsible for the day-to-day conduct of the study. Mr. Ray Murray of Kearney will manage the study. He will also work on the study in the marketing task where he has special competence.

Project Team

The project team will involve consultants with expertise in the various tasks to be completed during the study.

Task 1: Project Start-Up

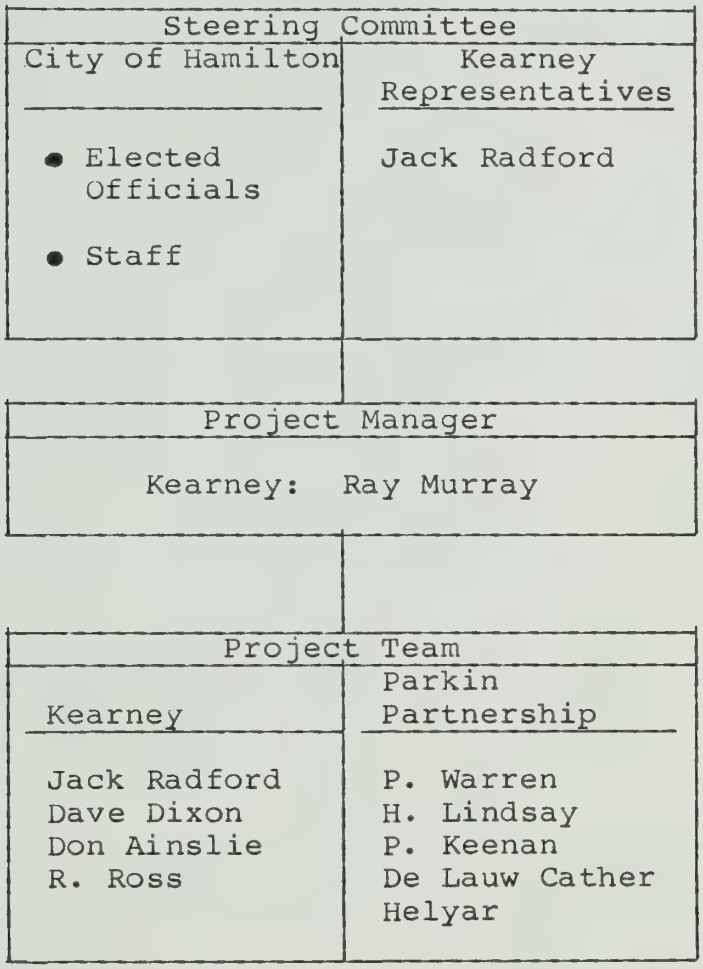
All the consultants will be involved in the initial meeting or meetings, and then may participate in a number of separate meetings that may be necessary to gather preliminary data.

Responsibility for the other tasks to be completed in the study will be divided among the members of the study team as follows:

Kearney	Parkin
Task 2: Interview Potential Users of Facilities	Task 4: Develop Preliminary Capital Costs
Task 3: Interview Operators of Similar Arenas and Stadiums	
Task 5: Perform Finanial Analysis	
Task 6-1: Identify Social Impacts	Task 6-2: Identify Environmental Impacts
Task 6-2: Identify Economic Impacts	
Task 6-3: Identify Cultural Impacts	

CITY OF HAMILTON ARENA/STADIUM FEASIBILITY STUDY

FIGURE 3: PROPOSED STUDY ORGANIZATION



TIMING AND FEES

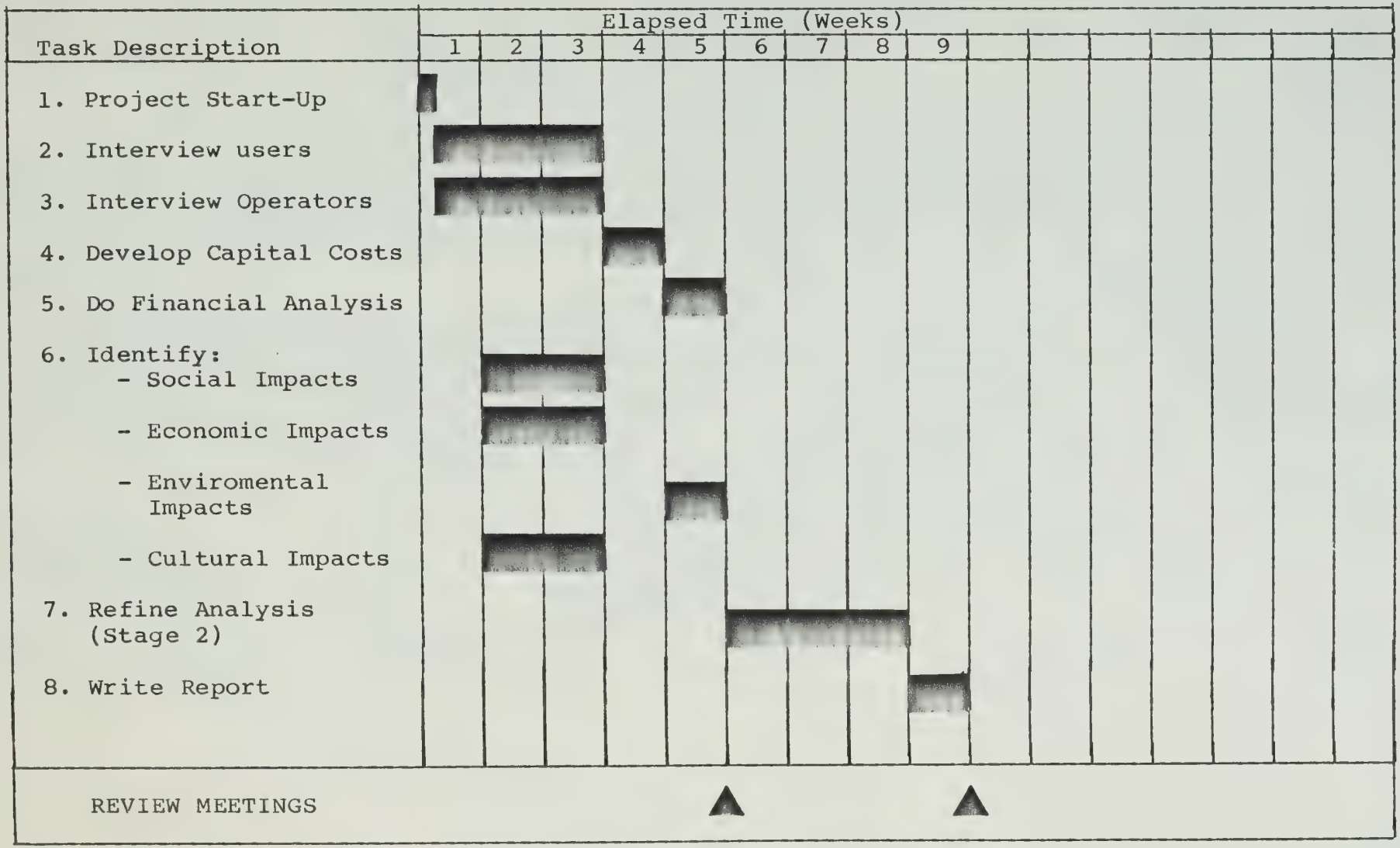
TIMING AND COSTS

We are prepared to start the study shortly after receipt of your approval to proceed. As shown in Figure 4, the study will take two months to complete. The professional fees will be $80,000. These fees are based upon acceptance of this proposal within 30 days of the date of the proposal.

In addition to professional fees, Kearney will bill actual out-of-pocket expenses related to the study. We will bill current fees and expenses at the end of each month.

THE CITY OF HAMILTON ARENA/STADIUM FEASIBILITY STUDY

FIGURE 4: STUDY TIMETABLE



C. N. E. SITE

KEARNEY

QUALIFICATIONS

KEARNEY QUALIFICATIONS

Kearney: Management Consultants Limited, and its parent company A.T. Kearney, Inc. has served government and industry throughout the world for over 50 years. Kearney currently employs over 400 professionals in 22 offices in North America, Europe and Asia.

Kearney undertakes about 1000 engagements per year. And many of these engagements have characteristics in common with the project that is the subject of this proposal. That is, many of them have dealt with:

- Strategic Analysis
- Market Research
- Financial Analysis
- Site Selection
- Facilities Planning
- Economic Planning
- Environmental Planning

Kearney has extensive experience with public agencies, and so is well versed in the techniques and practices required to complete successfully projects for all levels of government.

In the pages that follow, we describe some of the work that we have done in Facilities Planning. Also included is a list of Canadian clients and a list of clients in the Tourist, Recreation and Leisure industries for whom we have conducted assignments.

FACILITIES PLANNING

Physical facilities represent a substantial investment that brings together people, materials and machines into an operating complex that generates marketable products or services.

Company profits can be greatly enhanced by well-designed facilities specifically tailored to the needs of the business. Conversely, profits can be adversely affected by facilities that are either superfluous or inadequate.

Continual changes in economic, technological, social and political factors require management to evaluate and translate trends into new or modified facility requirements. Proper planning to accommodate these changes requires a well coordinated program that utilizes innovative, sophisticated, yet tested approaches.

Kearney has successfully assisted numerous clients over the years in planning facility expansions, consolidations and relocations.

Kearney's capabilities in facilities planning are extremely comprehensive. This is important because a number of diverse disciplines must usually be brought to bear to assure a successful new facility project. Kearney has had extensive experience, for example, in the following relevant areas:

- Economic Feasibility Studies
- Logistics of Manufacturing and Distribution
- Labor Availability Studies
- Facility Layout
- Facility Location
- Employee and Supervisory Training
- Project Management

SELECTED CLIENTS
FACILITIES PLANNING

Admiral Appliance Division (Rockwell Int'l)
American Chain and Cable Co., Inc.
Bendix Corp.
Blaw Knox Foundry & Mill Machinery
Cascade Corp.
Castings Division (General Steel Industries Inc.)

Chattem Drug & Chemical Company
Chicago Rawhide Manufacturing Company
Deere & Company
GKN Transmissions Ltd.
International Harvestor Company
Kelsey-Hayes Co. (Division of Fruehauf)

King-Seeley Thermos Co. (Div. of Household Finance Corp.)

McLaughlin Body Company
Mars Money Systems, Inc.
Mixing Equipment Co., Inc. (Div. of General Signal)
Mogen David Wine Co. (Div.of Coca-Cola)
Montgomery Elevator Co.

O'Neal Steel, Inc.
Ovaltine Food Div. (Sandoz-Warner, Inc.)
Reliance Electric Company
Roper Corp.
Tappan Company
Tennant Company

A.T. KEARNEY INC.

EXAMPLES OF RECENT
FACILITIES PLANNING ASSIGNMENTS

4
5
2

	Facilities							Layout							
	Plant and Site Location	Expansion	Consolidation	Evaluation	Space/Equipment Manpower-Planning	Implementation Assistance	Economic Analysis	Improve Present	Expand Present	New Facility	Estimate Capital, Moving/Transition Costs	Materials Handling	Warehouse Layout	Office Layout	
Abbott Laboratories		x		x	x		x			x	x	x	x		
Admiral Corporation	x	x			x							x			
American Metal Products (Lear Siegler)			x	x	x		x				x				
American Seating Company		x	x	x	x	x	x	x		x	x				
Amsted Industries	x	x		x	x		x		x	x	x	x	x		
Amtron Inc.		x		x	x	x	x		x	x	x	x			
Baltimore City Hospitals		x		x	x	x	x		x	x	x	x			
Bausch & Lomb Inc.		x			x	x	x			x	x	x			
Bell & Howell Co.					x	x	x		x		x	x	x		
Bharat Earthmovers, Ltd.	x			x	x		x			x	x	x			
Blodgett Memorial Hospital		x		x	x	x	x	x	x	x				x	
Borg Warner		x	x	x	x	x	x	x	x		x	x			
Chicago Rawhide Manufacturing Co.	x	x			x		x			x					
Chromium Mining & Smelting Co.				x							x				
Coates Steel Products	x					x	x				x				
Consolidated Paper Inc.		x		x	x			x	x		x	x			
Crane Co.			x	x		x	x				x				
Deere & Co.					x		x					x			
Detroit Steel Corp.		x					x		x		x				
Dillingham Corp.		x			x		x			x		x	x	x	
Eaton, Yale & Towne		x			x		x		x		x				
Electro-Motive Division (General Motors)		x	x	x	x			x			x				
Exxon Chemical Corporation U.S.A.		x			x					x					
Follett Publishing Company		x			x					x		x	x		
General Steel Industries, Inc.				x	x		x	x				x			
Glenmore Distilleries		x					x				x		x		
Herbst Shoe Manufacturing Co.	x	x			x	x	x				x	x	x	x	
The Hoover Co.	x	x			x	x	x		x	x	x	x			
Hyster Co.	x	x			x		x				x				
Illinois Cereal Mills	x	x					x				x				
Illinois Tool Works	x	x		x	x		x			x	x				
International Harvester		x		x	x		x		x		x	x			
Kelsey-Hayes	x	x		x	x	x	x	x	x	x	x	x			
Klein Memorial and Memorial Hospital	x		x	x		x	x	x			x				
Korean Machine Tool Plant	x				x		x			x		x			
The Kroger Co.				x	x	x	x	x		x	x	x	x		

EXAMPLES OF RECENT
FACILITIES PLANNING ASSIGNMENTS

4
5
2

	Facilities							Layout							
	Plant and Site Location	Expansion	Consolidation	Evaluation	Space/Equipment Manpower-Planning	Implementation Assistance	Economic Analysis	Improve Present	Expand Present	New Facility	Estimate Capital, Moving/Transition Costs	Materials Handling	Warehouse Layout	Office Layout
Marathon Electric Manufacturing Co.		x	x	x	x		x	x	x	x	x	x		
Masonite Corp.		x		x	x								x	
The Mead Corp.		x		x	x	x	x	x	x		x	x	x	
Michigan Carton Co.		x		x	x		x			x	x	x	x	
Midland Ross				x	x		x			x	x	x		
Mogan David Wine Corp.		x		x			x	x		x	x	x		x
Motorola				x	x				x			x	x	
National Cash Register Co.				x				x	x			x	x	
National Casting Division (Midland Ross)								x	x			x		
Northwest Engineering Corp.	x	x		x	x		x	x		x	x	x		
Ovaltine Co.	x	x					x			x	x			
Parade Publications				x	x			x	x					
Pikes Peak Regional Health Planning Council	x	x					x	x	x	x	x			
Publication Corp.		x		x	x		x			x	x			
Reliance Electric Co.		x			x		x			x	x			
Rex-Chainbelt		x	x	x	x		x		x		x	x	x	
Rheem Manufacturing Co.	x	x			x		x		x	x	x	x	x	
Sateway Stores, Inc.					x	x			x			x	x	
San Antonio Community Hospital		x		x	x		x	x	x	x				
Sangamon Co.		x		x	x	x			x		x	x	x	
O.M. Scott & Sons Co.				x	x		x	x				x	x	
Sperry Rand	x	x			x		x			x	x			
Tappan Co.			x	x	x	x	x	x			x	x	x	
Timma Copper Co.	x			x	x		x			x	x	x		
Tulane University School of Medicine														
Tuthill Pump Co.	x	x		x	x		x		x		x			
Twin-Disc Clutch Co.		x		x	x			x	x					x
UMC Industries, Inc.		x					x				x			
Union Carbide Corp.		x	x				x			x	x	x	x	
Universal Oil Products Co.										x	x			x
U.S. Department of Army (Munitions Command)		x			x		x	x	x	x	x	x		
U.S. Department of Navy (Naval Ord. Sys.Com)		x		x	x	x	x	x			x	x		
U.S. Postal Service		x		x	x		x			x	x	x		
Walgreens Co.	x	x			x		x					x		
Westinghouse Electric Corp.					x	x				x				

KEARNEY FACILITY FINANCIAL PLANNING MODEL

Kearney's Facility Financial Planning Model is used to evaluate long term capital investments.

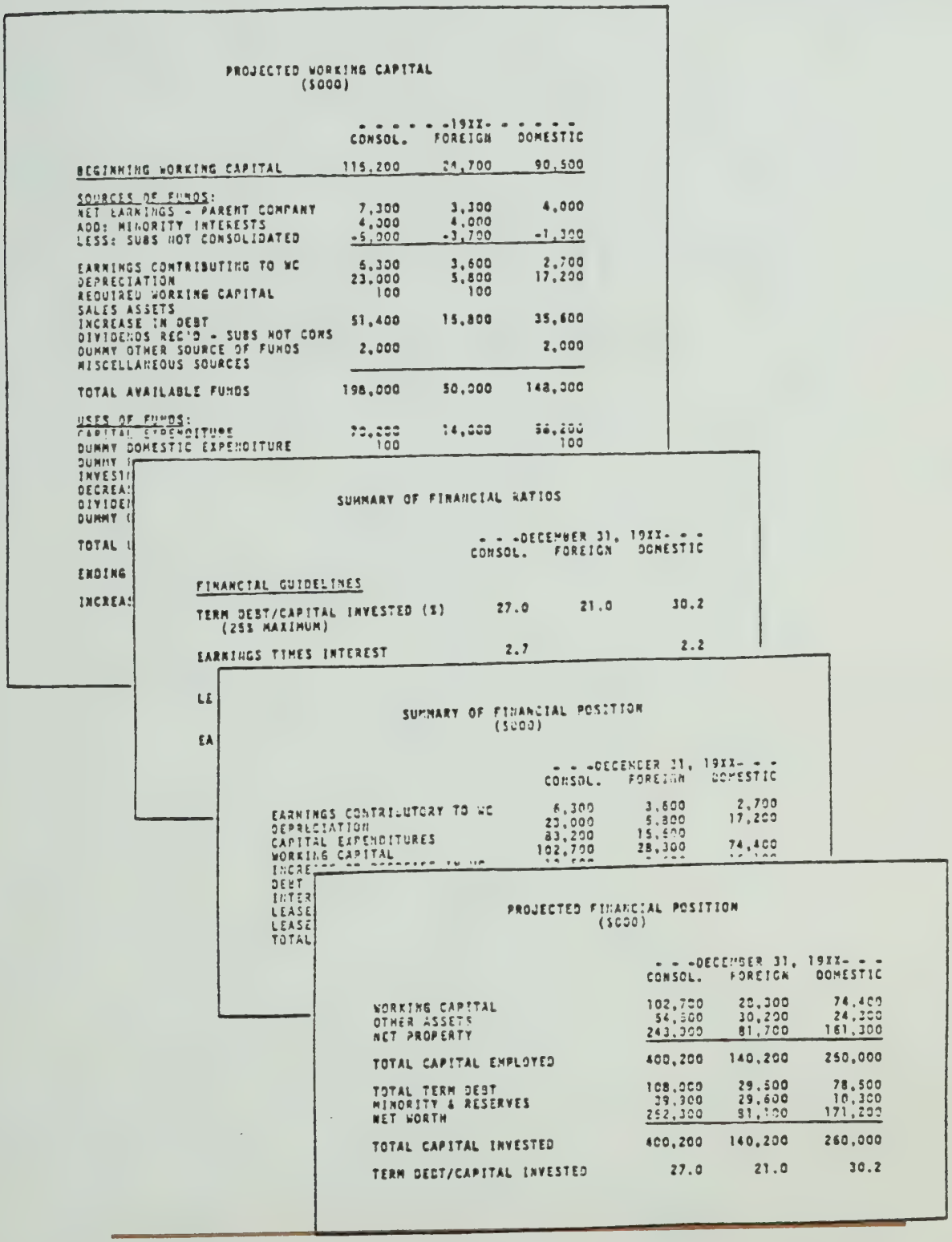
The model employs projections of expected cash flow, funds available for capital expenditure and long term debt ratios which are developed to compare alternative development plans.

The model allows the user a wide range of capabilities leading to the development of alternative financial plans for periods of one to five years in the future. Historical data is maintained in the system, including not only the standard financial position data, such as total working capital and increases (or decrease) in working capital and reserves, but, also the status of current debt obligations, projected carry-overs and referrals by project and division plus last year's capital expenditures, lease obligations, and investments by division.

Another unique feature of the model is that the user may have the option of scheduling or forecasting a wide array of expenditures and other financial actions.

Operating in either time-share or batch mode, the model can quickly spell out the effects of various proposed financial decisions. Samples of some of the output reports produced by the model are shown on the following page.

Facilities Financial Planning Model



PROJECTED WORKING CAPITAL
($000)

	CONSOL.	19XX FOREIGN	DOMESTIC
BEGINNING WORKING CAPITAL	115,200	24,700	90,500
SOURCES OF FUNDS:			
NET EARNINGS - PARENT COMPANY	7,300	3,300	4,000
ADD: MINORITY INTERESTS	4,300	4,000	
LESS: SUBS NOT CONSOLIDATED	-5,000	-3,700	-1,300
EARNINGS CONTRIBUTING TO WC	6,300	3,600	2,700
DEPRECIATION	23,000	5,800	17,200
REQUIRED WORKING CAPITAL	100	100	
SALES ASSETS			
INCREASE IN DEBT	51,400	15,800	35,600
DIVIDENDS REC'D - SUBS NOT CONS			
DUMMY OTHER SOURCE OF FUNDS	2,000		2,000
MISCELLANEOUS SOURCES			
TOTAL AVAILABLE FUNDS	198,000	50,000	148,000
USES OF FUNDS:			
CAPITAL EXPENDITURE	70,200	14,000	56,200
DUMMY DOMESTIC EXPENDITURE	100		100
DUMMY			
INVESTI			
DECREA			
DIVIDE			
DUMMY			
TOTAL			
ENDING			
INCREA			

SUMMARY OF FINANCIAL RATIOS

	DECEMBER 31, 19XX CONSOL.	FOREIGN	DOMESTIC
FINANCIAL GUIDELINES			
TERM DEBT/CAPITAL INVESTED (%) (25% MAXIMUM)	27.0	21.0	30.2
EARNINGS TIMES INTEREST	2.7		2.2
LE			
EA			

SUMMARY OF FINANCIAL POSITION
($000)

	DECEMBER 31, 19XX CONSOL.	FOREIGN	DOMESTIC
EARNINGS CONTRIBUTORY TO WC	6,300	3,600	2,700
DEPRECIATION	23,000	5,800	17,200
CAPITAL EXPENDITURES	83,200	15,500	
WORKING CAPITAL	102,700	28,300	74,400
INCRE			
DEBT			
INTER			
LEASE			
LEASE			
TOTAL			

PROJECTED FINANCIAL POSITION
($000)

	DECEMBER 31, 19XX CONSOL.	FOREIGN	DOMESTIC
WORKING CAPITAL	102,700	28,300	74,400
OTHER ASSETS	54,500	30,200	24,300
NET PROPERTY	243,000	81,700	161,300
TOTAL CAPITAL EMPLOYED	400,200	140,200	260,000
TOTAL TERM DEBT	108,000	29,500	78,500
MINORITY & RESERVES	39,300	29,600	10,300
NET WORTH	252,300	81,100	171,200
TOTAL CAPITAL INVESTED	400,200	140,200	260,000
TERM DEBT/CAPITAL INVESTED	27.0	21.0	30.2

RESUMES OF KEARNEY STAFF

JACK RADFORD
Managing Director - Canada

EDUCATION

University of Western Ontario	Master of Business Administration
Institute of Chartered Accountants of Quebec and McGill University	Chartered Accountant
Saint Mary's University	Bachelor of Commerce

ASSOCIATIONS

Institute of Management Consultants of Ontario
Canadian Institute of Chartered Accountants
Western Business School Association
North American Society for Corporate Planning
Personnel Association of Toronto

PROFESSIONAL EXPERIENCE

Ministry of Industry and Tourism, Province of Ontario	Consultant
Saint Mary's University	Assistant Professor
Coopers Lybrand, Chartered Accountants	Senior Staff Accountant
Clarkson Gordon & Co., Chartered Accountants	Senior Staff Accountant

ARTICLES

"Increased Sales Don't Mean Increased Profits"
"Inventory Control: The Growing Risks of a Shrinking Problem"

JACK RADFORD
Managing Director - Canada

SELECTED CONSULTING EXPERIENCE

Strategic Planning for a Major Canadian Corporation

Developed a comprehensive five-year strategic plan. The plan focused on the management of resources at a functional level. Practical environmental analysis led to redefined strategic objectives and the creation of strategically defined action plans to achieve the new mission.

Analysis of action plans required redefinition of critical variables for project evaluation and functional activity justification. A process for zero-based resource management evolved from considerations of the strategic resource mix to achieve the corporate objectives.

Follow-on work included the development of the methodology for updating the strategic plan, in-depth analysis of the implications for information and control systems support to the plan, integration of the methodology into the ongoing management process and development of client personnel in resource planning concepts.

JACK RADFORD
Managing Director - Canada

SELECTED CONSULTING EXPERIENCE

Strategic Planning Cement and Construction Material Industry

Developed a five-year resource management plan focusing on broad corporate strategic options. Analysis included evaluation of impact of trends and conditions in external environments including technological issues and competitive strategies.

Review of the development of the industry and current issues in the structure of the industry and its regulatory status provided vital input to strategy formulation. Considerable effort was directed towards the articulation of a corporate mission, objectives and success factors.

Deliverables included an update methodology, competitive analysis, environmental factor analysis and the recommendations for implementing the selected strategy.

JACK RADFORD
Managing Director - Canada

SELECTED CONSULTING EXPERIENCE

Marketing Strategic Study
Steel Industry - Carbon Steel Pipe/ U.S.A. and Canada

Directed a marketing analysis to identify market segments and evaluate penetration opportunities for a proposed small diameter ERW pipe mill. The study concerned itself with the market structure, the impact of foreign producers on the pricing structure, distribution channels per segment, end-user analysis, trigger pricing, market size and product profitability estimates.

Financial Evaluation
Paper Industry - Canada

Conducted a study and analysis of the financial and operational characteristics of a major integrated Canadian paper company.

The study included:

- Review of pulp pricing and trends;
- Operating ratio analysis;
- Cash flow requirements;
- Valuation of mills;
- Refinancial alternatives;
- Return on investments projections.

JACK RADFORD
Managing Director - Canada

SELECTED CONSULTING EXPERIENCE

Executive Compensation
Pulp and Paper - Canada

Conducted an indepth study of executive level compensation in the North American pulp and paper industry.

The study was conducted for a major Canadian paper company. Study tasks included:

- Review of senior executive level compensation trends;
- Consideration of corporate results and compensation levels;
- Development of regression analysis for compensation validation;
- Development of a table of available executive prerequisites including impact on taxation and corporate earnings per share.

Electronic Components/Manufacturing

Project manager of study to review status of production and operational systems for leading Canadian manufacturer of life protection equipment.

Study defined actions required to improve operational and information control for increased profitability. Included was overview of management process and evaluation of the impact of changes on the organization.

JACK RADFORD
Managing Director - Canada

SELECTED CONSULTING EXPERIENCE

Petroleum Industry

Conducted shareholder's audits involving analysis and evaluation of financial and administrative control systems, together with policies and procedures relating to asset control. Information systems were evaluated and tested to ensure proper hardware and software controls were in place.

Sugar Industry

Conducted reviews of financial and managerial controls including management information systems and physical distribution control systems. Tested and evaluated computer hardware and software for required controls and output effectiveness.

Marine Transportation - Charter/Hire Fleet

Conducted analysis of world's largest international charter-hire fleet operations. Evaluations were made of the financial accuracy and timing of reporting procedures. Evaluated voyage charter and time charter contracts for financial returns. Studied capital budgeting process and decision rules for ship construction and funds allocation.

JACK RADFORD
Managing Director - Canada

SELECTED CONSULTING EXPERIENCE

Operational Long Range Planning - Integrated Canadian Oil Company

Developed an alternative five-year operational plan for an oil sands based company. The plan was developed from analysis of alternative equipment strategies and operational plans. Consideration was given to impact of adverse weather, high labour turnover, prototype equipment and low mechanical equipment availability. Improved efficiency measures were also developed to enhance total cost effectiveness. Implementation plans were identified and are presently under further program development. Total potential impact of study on positive cash flows is in the range of $50 million dollars.

Manufacturing Strategy Construction Materials - Concrete Products

Directed a study to evaluate the manufacturing strategy options for a three plant operation. The analysis focused on identifying the short-term and longer term implications of plant rationalization. The project deliverables included an updated distribution network, analysis of the financial impacts on operations and detailed cost factor analysis. An action plan was detailed for the decision alternatives.

RAYMOND J. MURRAY, C.M.C.
Manager

EDUCATION

University of Western Ontario, Graduate School of Business Administration	Master in Business Administration
University of Western Ontario	Bachelor of Arts
Institute of Management Consultants of Ontario	Certified Management Consultant

INDUSTRY EXPERIENCE

Corning Glass Works Biomedical Products Division	Sales Development Specialist
Treasury Board, Compensation Policy Division	Compensation Analyst

ASSOCIATIONS

Institute of Management Consultants of Ontario

University of Western Ontario Business School Association

Board of Trade of Metropolitan Toronto

PUBLICATIONS

"Eight Steps to Sales Force Effectiveness", MARKETING.

RAYMOND J. MURRAY
Manager

Publications (continued)

"More Punch For Your Consulting Dollar" PURCHASING MANAGEMENT

"Status Set for Another Step Forward" PURCHASING MANAGEMENT.

"There's Still Time To Turn Off Maintenance Drain On Profits" MAINTENANCE MANAGEMENT

"Maintenance: The Silent Giant When It Comes To Profits" INDUSTRIAL MANAGEMENT

RAYMOND J. MURRAY, C.M.C.
Manager

SELECTED CONSULTING EXPERIENCE

Marketing/Market Planning

Conducted a major market study for one of Canada's largest distributers of laboratory equipment and chemical supplies. Study involved the determination of the total market size and expected growth rates of various sub-segments of this laboratory market. Study emphasis directed towards Alberta, Ontario and Quebec markets.

Directed a study to investigate the North American market for pulp and paper. The study included: an evaluation of the potential pulp source, primary and secondary market evaluation, the identification of target markets, the degree of industry integration, the analysis of environmental trends and their probable impacts on the industry and the analysis of the identified opportunities

Conducted a major pulp and paper marketing study in Egypt for the U.S. Government (A.I.D.). The purpose of the study was to aid in determining the feasibility of expanding pulping capacities and/or adding paper making capabilities.

Conducted a market study for a large Canadian steel producer. The study was directed at identifying opportunities for increased market penetration. During the study, conducted interviews with major steel users and distribution channel representatives. Performed analysis on industry trends and purchase criteria relating to various steel products.

RAYMOND J. MURRAY, C.M.C.
Manager

SELECTED CONSULTING EXPERIENCE

Marketing/Market Planning
(continued)

Directed a major marketing study for a large Canadian cement manufacturer. The study was oriented to improve profitability by measuring customer service and selling efforts towards selective customers and market area.

Directed a marketing analysis to identify market segments and evaluate penetration opportunities for a proposed small diameter ERW pipe mill. The study concerned itself with the market structure, the impact of foreign producers on the pricing structure, distribution channels per segment, end-user analysis, trigger pricing, market size and product profitability estimates.

Conducted a study to define the market size, service characteristics, customer needs, promotional requirements and potential profitability of a coastal freight ferry service on the Atlantic coast of Canada and the United States.

Developed and directed sections of the marketing, sales and strategic plans for the successful work-out of the largest bankruptcy in the United States in 1977. Later requested by SEC and Creditors Committee to review progress of company with respect to plan. Turn around was successful.

RAYMOND J. MURRAY, C.M.C.
Manager

SELECTED CONSULTING EXPERIENCE

Strategic Planning

Developed a five-year resource management plan focusing on broad corporate strategic options. Analysis included evaluation of impact of trends and conditions in external environments including technological issues and competitive strategies. Review of the development of the industry and current issues in the structure of the industry and its regulatory status provided vital input to strategy formulation. Considerable effort was directed towards the articulation of a corporate mission, objectives and success factors.

Participated in major project for one of Canada's largest department store chains involving the design and implementation of advanced strategic planning process in the credit department.

Developed short-term action plans and long-term strategic plans for the successful bankruptcy work-out of a major textile mill. Key success factors were isolated and became focal points for rapid turn around plans.

Directed a study to investigate the North American market for pulp and paper. The opportunity analysis was undertaken from a strategic perspective and included a review of the competitive situation, industry performance, resource requirements and market potential.

RAYMOND J. MURRAY, C.M.C.
Manager

SELECTED CONSULTING EXPERIENCE

Sales/Sales Force Effectiveness

Directed a study to improve the effectiveness of the sales force of a large supplier of cement to the Canadian and U.S. market. Tasks included developing the company's market profile, defining the selling role, improving the management information systems and the re-alignment of sales territories.

Developed a program to improve sales force effectiveness for a manufacturer of personal and commercial envelopes. Initial task involved the definition of major customer-types and current channels of distribution. The development of an appropriate selling role to effectively penetrate these channels and customers was a key task.

Developed the sales strategy and sales objectives for the Canadian market introduction of a number of sophisticated biomedical instruments for a leading international manufactuer.

Established a successful sales strategy to increase the Canadian market penetration for a major glassware manufacturer.

Developed and presented a Sales Force Effectiveness Seminar. The seminar was presented to various Canadian Marketing and Sales Vice Presidents.

RAYMOND J. MURRAY, C.M.C.
Manager

SELECTED CONSULTING EXPERIENCE

Distribution

Developed and documented the information and control systems necessary for the distribution of petrochemical products by various modes. Product movements required constant co-ordination between production, tank farm management, loading services and various rail/truck/pipeline/marine transporters.

Determined the distribution policy and procedures for various scientific instruments and laboratory products lines. These policies were developed to complement the existing market plan and augment the sales force efforts in achieving their aggressive sales increase objectives.

Systems/System Planning

Established a system that generated and eventually consolidated customer/product sales forecasts for a major crude oil refinery. This twelve-month rolling forecast became the nucleus of all forecasts concerning raw material requirements and production activities.

Defined the resource requirements and determined the compatibility of various proposed systems as described in the Five Year Systems Plan of a large merchandising organization. This "future systems audit" established priorities for development and activation of proposed systems.

Developed and documented a system for the administration and monitoring of various "Take-or-Pay" sales contracts for a large Canadian petrochemical refinery.

RAYMOND J. MURRAY, C.M.C.
Manager

SELECTED CONSULTING EXPERIENCE

Personnel

Evaluated the Personnel Staffs of various departments of the Federal Government to determine the quality and quantity of staff prior to the delegation of the classification and compensation authority for senior executives of that department.

Developed and assisted in the implementation of a new sales compensation program for a distributor of power transmission products.

Developed appropriate compensation program for senior executives of regional trucking firm. Key task was the compilation of data and analysis of executive compensation levels in the Canadian trucking industry.

Maintenance

Directed an audit of the maintenance department of a major Canadian producer of natural gas. Significant profit improvement opportunities were identified and realized.

RAYMOND J. MURRAY, C.M.C.
Manager

SELECTED CONSULTING EXPERIENCE
IN THE PULP AND PAPER INDUSTRY

Directed a study to investigate the North American market for pulp and paper. The study included: an evaluation of the raw material source, primary and secondary market evaluation, the identification of target markets, the degree of industry integration, the analysis of environmental trends and their probable impacts on the industry, and the analysis of the identified opportunities.

Conducted a major pulp and paper marketing study in Egypt for the U.S. Government (A.I.D.). The purpose of the study was to aid in determining the fesibility of expanding pulping capacities and/or adding paper making capabilities. Extensive use made of field interviews with major end-users of both pulp and paper. Export markets were also assessed.

Developed an industrial profile for a major manufacturer and distributor of paper and lumber products. Company's diverse product line includes newsprint, fine paper, bags, chemicals, plywood, lumber and other types of building materials. The industrial profiles formed a segment of the company's marketing and strategic planning informational requirements.

Developed a program to improve sales force effectiveness for a manufacturer of personal and commercial envelopes. Initial task involved the definition of major customer-types and current channels of distribution. Appropriate selling role to effectively penetrate these channels and customers was developed.

RAYMOND J. MURRAY, C.M.C.
Manager

SELECTED CONSULTING EXPERIENCE
IN THE PULP AND PAPER INDUSTRY(continued)

Reviewed distribution alternatives for a manufacturer of newsprint to determine feasibility. Manufacturer supplies major urban centres along the East Coast of Canada and the United States. Shipping alternatives included: barge, boat, rail, truck and a truck/ferry service combination.

DAVID P. DIXON, C.M.C.
Senior Associate

EDUCATION

MacMaster University	Master of Arts Economics and Organizational Development
Laurentian Unversity	Bachelor of Arts Economics, Mathematics and Business

PROFESSIONAL QUALIFICATIONS

Certified Management Consultant

INDUSTRY EXPERIENCE

Peat, Marwick & Partners	Management Consultant
Erion, Dixon & Associates Ltd.	Management Consultant
Government of Ontario	
Civil Service Commission	Management Development
Ontario Youth Secretariat	Youth Employment Co-ordinator
Administrative Training Program	Administrative Trainee

ASSOCIATIONS

Institute of Management Consultants of Ontario

Canadian Economics Associations

DAVID P. DIXON, C.M.C.
Senior Associate

SELECTED CONSULTING EXPERIENCE

Market Evaluation

Pulp and Paper Industry

Conducted a study to investigate the North American market for pulp and paper. The study included: an evalauation of the potential pulp source, primary and secondary market evaluation, the identification of target markets, the degree of industry integration, the analysis of environmental trends and their probable impacts on the industry, and the analysis of the identified opportunities.

The opportunity analysis was undertaken from a strategic perspective and included a review of the competitive situation, industry performance, resource requirements and market potential.

Rail Car Leasing

Assisted with the evaluation of the Canadian rail car leasing market. The study resulted in the identification of significant market opportunities for the client.

DAVID P. DIXON, C.M.C.
Senior Associate

SELECTED CONSULTING EXPERIENCE

Market Analysis

Laboratory Supplies and Equipment

On behalf of a multinational distributor of laboratory supplies and equipment undertook a market study of the Canadian industrial, educational and governmental laboratory markets. The study included market size and projected growth, the evaluation of supplier selection criteria, and a review of the competitive environment. The key strategic implications of the market were identified.

Market Analysis Sports Equipment

Conducted a study to review the Canadian market for hockey sticks and hockey protective equipment. The study was undertaken on behalf of the European manufacturer and the Canadian distributor. Information was provided on:

- the structure and performance of the market
- the trends in consumer preferences
- the brand profile in the market
- the distributor's profile in the market

Key issues were identified to facilitate the development of a marketing strategy.

DAVID P. DIXON, C.M.C.
Senior Associate

SELECTED CONSULTING EXPERIENCE

Market Evaluation

Tourism and Hotels

Undertook a market and competitive review of the hotel/motel industry in the United States on behalf of a major hotel/motel chain. Developed an environmental assessment and forecast for the supplies market including the hotel/motel, restaurant and health care industries. Impacts of the major factors were evaluated in terms of their projected influence on the industries themselves, the product and service markets, the channels of distribution and the competitive environment. The study was the first phase of a strategic planning process.

Feasibility Hotel Industry

On behalf of a leading Canadian hotel chain conducted a complete operational review and feasibility study of a major hotel in Alberta. As a member of the consulting team, conducted portions of the operational analysis and evaluated specific Canadian and American market segments.

Feasibility Centralized Facilities

On behalf of a major Canadian hotel chain, conducted a study of the feasibility of a proposed central laundry facility to serve the client's Quebec properties. The study included a market analysis, the development of detailed preliminary cost estimates and a financial analysis.

DAVID P. DIXON, C.M.C.
Senior Associate

SELECTED CONSULTING EXPERIENCE

Productivity Improvement

Private Fleet

Undertook a program to improve the productivity of the private fleet of a major international pulp and paper company. The program included: setting of driver standards, development of a dispatching system, development of an operational management information system, and development of a financial management information system. The program included an implementation program.

Market Evaluation

Marine Transportation

Conducted an analysis of the market potential for bulk liquid marine movement in the Great Lakes, St. Lawrence and North-Eastern U.S. Coast. The study was undertaken on behalf of a corporation planning to enter the market with a new type of service.

The study included the evaluation of the current and projected market potential and the evaluation of potential revenue. The study also included the evaluation of the competitive environment and the criteria for successful market entry.

Revenue projections were developed by simulating vessel operations using conservative rate assumptions and individual projected point to point commodity movements. The study established significant market and revenue potential for the proposed new service.

DAVID P. DIXON, C.M.C.
Senior Associate

SELECTED CONSULTING EXPERIENCE

Marketing/Sales Management

Cement Industry

On behalf of an international cement producer evaluated the sales and marketing programs in both Canada and the United States. The evaluation included: the customers and their purchase criteria, the corporate marketing profile, the salesman's role, territory comparison, profitability analysis, sales information, sales management, and compensation. The study recommended a series of actions that could increase net operating profits. The study recommendations were implemented and significant profit gains realized.

Simulation

Rail Operations

Provided assistance with the simulation of rail operations in a major U.S. urban area. Prepared a detailed description of simulation logic, procedures and results. The purpose of the simulation was the determination of the impact of additional commuter trains on existing rail operations.

DAVID P. DIXON, C.M.C.
Associate

SELECTED CONSULTING EXPERIENCE

Marketing/Sales Management

On behalf of an international cement producer evaluated the sales and marketing programs in both Canada and the United States. The evaluation included: the customers and their purchase criteria, the corporate marketing profile, the salesman's role, territory comparison, profitability analysis, sales information, sales management, and compensation. The study recommended a series of actions that could increase net operating profits. The study recommendations were implemented and significant profit gains realized.

DAVID P. DIXON, C.M.C.
Associate

SELECTED CONSULTING EXPERIENCE

Regional Development Planning

Prepared an outline of an approach to Regional Economic Development Planning including detailed information on data base formulation and maintenance and a methology for plan development. The project was undertaken for a newly constituted Regional Authority in an undeveloped northern region. Plan implementation phases were co-ordinated with the criteria of the Provincial planning authorities. Subsequently assisted the Regional Authority with planning and implementation phase of their total responsibilities.

In conjunction with another consultant, prepared an outline of a rational approach to National/Regional Tourism and Hotels development. The approach focused on the need to integrate tourism development with other development. The approach has been utilized on a number of tourism projects throughout the world.

DAVID P. DIXON, C.M.C.
Associate

SELECTED CONSULTING EXPERIENCE

Public Sector Programs and Policies

On behalf of the Government of Ontario's Youth Secretariat undertook the co-ordination of youth employment programs. This included direct responsibility for the start-up, management and evaluation of the Province's 9 million dollar experiential employment program, the review of all proposals for projects to the Federal Governments O.F.Y. program, the review of the youth employment situation, participation on various "youth" oriented policy committees, and accompanying the Minister on provincial tours.

Conducted an evaluation of the Federal Department of Manpower and Immigration's Opportunities for Youth program. The evaluations focused on program delivery and project officer performance.

On behalf of the Government of Ontario's Ministry of Treasury, Economics and Intergovernmental Affairs reviewed policy proposals on expansion of a Regional Airline, subsidies for Public Transportation and capital requirements for Housing.

DAVID P. DIXON, C.M.C.
Associate

SELECTED CONSULTING EXPERIENCE

Socio-Economic Impact Assessment

Provided assistance to a native peoples' regional council in the evaluation of the socio-economic impacts of various proposed development projects including, mineral exploration, retailing, credit union/bank, canoe marketing, etc.

Examined the prospects for gas pipeline development in Alaska including the evaluation of issues raised at the U.S. Department of Interior's Bureau of Land Management public hearings.

Prepared a summary outline of various perspectives on the local socio-economic impacts of the construction phase of the Alaska pipeline.

Research and preparation of a presentation to the Mackenzie Valley Pipeline Inquiry (The Berger Inquiry). The presentation focused on the positive effects of extending the construction phase.

DONALD F. AINSLIE
Associate

EDUCATION

University of Michigan	Bachelor Degree of Business Admin.
University of Western Ontario	Post Graduate Studies in Business Admin.

ASSOCIATIONS

Western Business School Association

PROFESSIONAL EXPERIENCE

Long Manufacturing Division, Borg Warner (Canada) Limited	Vice-President Operations
Eaton's of Canada	Distribution Centre Manager
Stevenson and Kellogg Limited	Manufacturing Consultant
Mallory Battery Company	Plant Manager, Industrial Engineer

DONALD F. AINSLIE
Associate

CONSULTING ASSIGNMENTS

Cost Reduction Programs

Direct and Indirect Labour Controls

Employee Incentive Compensation Plans

Hourly and Salary Job Evaluation

Industrial Engineering Training

Methods Engineering

Materials Handling

Organization and Staffing Studies

Product Line Evaluation

Supervisory Training

Warehousing and Physical Distribution

Work Measurement, Production and Clerical.

DONALD F. AINSLIE
Associate

CONSULTING EXPERIENCE

Pulp and Paper, paper Converter

- Price Brothers
- Quebec North Shore Paper
- Consolidated Paper
- Maritime Paper Products
- Bathurst Containers
- W.J. Gage
- Nashua

Metal Fabrication

- Square D
- Veeder Root
- Northern Telecom

Government of Canada

- Royal Canadian Air Force
- Royal Canadian Navy
- Glassco Commission
- Canadian Arsenals

Textile

- Monarch Knitting
- Bell Thread
- Tony Day
- Deacon Brothers

Plastic

- Armstrong

DONALD F. AINSLIE
Associate

INDUSTRY EXPERIENCE

Metal Manufacturing

Directed a wide variety of projects for automotive, electrical and electronics companies in:

- Materials management organization, systems and procedures, use of MRP and controls. Areas included in analysis were purchasing procedures, production scheduling, inventory planning, master scheduling and customs and traffic.

- Facilities planning, plant site selection, plant layout and financial tax incentives for new plant building and equipment.

- Work measurement MTM standards for day-work and incentive compensation, including training of foremen and industrial engineers in MTM and methods engineering.

- Capital budget planning and controls for one and five year plans incorprating cost reduction action plans to meet annual savings targets.

- Job evaluation using factor analysis technique to establish base rates for direct, indirect and skilled trades.

- Labour negotiations for contract renewals, both as Chief Spokesman and Team Participant.

DONALD F. AINSLIE
Associate

INDUSTRY EXPERIENCE

Metal Manufacturing (Continued)

- Energy conservation for a multi-plant company establishing annual goals and feedback controls. Directed the development of three water treatment facilities to meet provincial and state legislation standards.

- New manufacturing technology studies into robotics, vacuum and atmospheric brazing, mass spectrometer product testing and high speed presses.

DONALD F. AINSLIE
Associate

INDUSTRY EXPERIENCE

Government

Conducted several independent studies for Federal and Provincial Governments in:

- Warehousing of finished goods through development of new stock locator system and layout of storage areas, achieving a 15% improvement in materials handling and storage capacity.

- Manpower tables for staffing a large distribution center using standard work measurement data resulting in a 30% reduction in staff. The standard data was developed to be "transferable" for use in other distribution centres.

- Productivity study using work sampling, of a large maintenance/overhaul operation, to determine utilization of skilled trades staffs to achieve productivity improvement.

- Plant closing of a major wartime manufacturing industry, continuing to operate in th post war period. This study resulted in the industry being closed and put into a "caretaker" mode.

DONALD F. AINSLIE
Associate

INDUSTRY EXPERIENCE

Pulp and Paper/Paper Converters

Implemented a job evaluation program to establish base rates for direct, indirect and skilled trades employees at a corrugeated paper company. A system for "buying-off" a great many red-circle rates was successfully achieved.

Directed implementation of work standards program at a paper box company. Client personnel were trained in industrial engineering techniques using MTM, time study and work sampling. Implemented a system for reporting actual versus standard hours on a job-by-job basis.

Updated salary evaluation programs in three large pulp and paper companies. Carried out salary surveys of other pulp and paper companies to maintain consistency of company salary policy.

DONALD F. AINSLIE
Associate

INDUSTRY EXPERIENCE

Textile

Conducted a product line analysis for a sweater company to determine number of lines to be manufactured. This analysis resulted in the reduction of lines from 60 to 28 for a significant reduction in manufacturing set-ups and machine efficiencies.

Directed implementation of a methods/standards/training program for an underwear company on cutting, sewing and packaging. Development of standard data permitted a concentration on operator methods and training for significant reduction in standard costs.

Developed plant layout for sewing room operations to facilitate the material handling to and away from each work station. Power conveyorized systems and film-loop training were successfully developed.

DONALD F. AINSLIE
Associate

TYPES OF INDUSTRIAL ASSIGNMENTS

Capital Budget Planning

Energy Conservation: Programs, goals and controls.

Facilities Planning, Site Selection and Layout.

Inventory Management

Labour Negotiations

Lone Range Planning

Management by Objectives

Materials Requirement Planning

Purchasing

Quality Control

Strategic Analysis Planning

Treatment of Water and Air

DONALD F. AINSLIE
Associate

CONSULTING EXPERIENCE

	CLIENT		Man Power Staff-ing	Org. Studies Finan'l	Job and Salary Eval.	Plant Layout	Work Measrmt.		Method Eng'r'g.
							Train-ing	Wage Inct. Stds.	
Fed. Gov't	1. R.C.A.F.	16	✓				✓	✓	
	2. R.C. Navy	3					✓	✓	
	3. Glasco	3		✓					
	4. Can Arsenals	3		✓					
Pulp and Paper	5. Price Brothers	2			✓				
	6. Que. N. Shore P.	3			✓				
	7. Cons Paper	2		✓					
Paper Con-verter	8. Marit. Paper	10			✓	✓	✓	✓	✓
	9. W.J. Gage	3					✓	✓	
	10. Bathurst	2					✓	✓	
	11. Nashua	3					✓		✓
Metal Fabric	12. Square D.	5					✓	✓	✓
	13. Veeder Root	2						✓	✓
	14. Northern Telecom	3					✓		✓
Plstc.	15. Armstrong	5					✓	✓	✓
Tex-Tile	16. Monarch Knit	14				✓	✓	✓	✓
	17. Bell Thread	3						✓	✓
	18. Tony Day	5		✓		✓	✓	✓	✓
	19. Deacon Brothers	3				✓		✓	✓

DONALD F. AINSLIE
Associate

CONSULTING EXPERIENCE

	CLIENT		Man Power Staff-ing	Org. Studies Finan'l	Job and Salary Eval.	Plant Layout	Work Measrmt.		Method Eng'r'g.
							Train-ing	Wage Inct. Stds.	
Fed. Gov't	1. R.C.A.F.	16	✓				✓	✓	
	2. R.C. Navy	3					✓	✓	
	3. Glasco	3		✓					
	4. Can Arsenals	3		✓					
Pulp and Paper	5. Price Brothers	2			✓				
	6. Que. N. Shore P.	3			✓				
	7. Cons Paper	2		✓					
Paper Con-verter	8. Marit. Paper	10			✓	✓	✓	✓	✓
	9. W.J. Gage	3					✓	✓	
	10. Bathurst	2					✓	✓	
	11. Nashua	3					✓		✓
Metal Fabric	12. Square D.	5					✓	✓	✓
	13. Veeder Root	2						✓	✓
	14. Northern Telecom	3					✓		✓
Plstc.	15. Armstrong	5					✓	✓	✓
Tex-Tile	16. Monarch Knit	14				✓	✓	✓	✓
	17. Bell Thread	3						✓	✓
	18. Tony Day	5		✓		✓	✓	✓	✓
	19. Deacon Brothers	3				✓		✓	✓

RONALD M. ROSS
Associate

EDUCATION

McGill University	Bachelor of Engineering
	Electrical Engineering (Communications)

PROFESSIONAL QUALIFICATIONS

Professional Engineer

ASSOCIATIONS

Associations of Professional Engineers of Ontario
Material Handling Society of Montreal. Past President

INDUSTRY AND CONSULTING EXPERIENCE

Royal Canadian Air Force	Telecommunications Officer
Steinberg Ltd.	(1) Manager of Plant Engineering (2) Manager of Methods Engineering
Sydney Kom & Associates Ltd.	Management Consultant
T. Eaton Co. Ltd.	Manager of Industrial Engineering

RONALD M. ROSS
Associate

Price Waterhouse Associates	Senior Management Consultant
Devencore Realties Ltd.	Vice President Operations and Administration
Marcil Mortgage Corporation	Mortgage Officer
Stevenson & Kellogg Ltd.	Senior Management Consultant

RONALD M. ROSS
Associate

PUBLICATIONS

- "Work Measurement at Work"
  Canadian Chartered Accountant

- "A new Analyst's Tool for Work Measurement"
  Plant Management & Engineering

- "Simplified Work Measurement"
  Canadian Machinery & Metal Working

- "Computer Analyzes Data - Man Analyzes the Job"
  Industrial Engineering Journal

RONALD M. ROSS
Associate

SELECTED WAREHOUSE/MATERIAL HANDLING EXPERIENCE IN THE GROCERY INDUSTRY

Worked as a member of the distribution management team of a major Canadian grocery chain. Warehouse functions represented were dry grocery, produce, dairy, non-food, frozen food and carton recycling. Directed all maintenance work on material handling vehicles and equipment, and on facilities. Warehouse areas totalled about 1,000,000 square feet.

Participated as member of a task force made up of architects, consulting engineers, and management consultants in the design and construction of several new dry grocery warehouses ranging up to 200,000 square feet in area.

Conducted a feasibility study for a dairy wholesaler for the extension of a mechanized system for moving goods from storage to the shipping dock.

For a client with an existing 300,000 square foot warehouse recommended methods for increasing productivity through improved warehouse layout and new types of material handling vehicles.

RONALD M. ROSS
Associate

SELECTED MAINTENANCE AND CONSULTING EXPERIENCE IN THE FOOD INDUSTRY

For a major Canadian grocery chain directed a large group of tradesmen responsible for maintenance and project work. Food manufacture and processing included bakery, specialty bakery, delicatessen, sausage, coffee roasting, peanut roasting, and tea bagging.

For the same company directed a group of engineers responsible for developing and implementing methods improvements in the corporate maintenance group. This included all retail stores as well as warehouses and manufacturing plants.

For a large Canadian wholesaler prepared a plant layout, procured equipment and engaged consulting engineers for the construction of a delicatessen kitchen. This kitchen supplied the wholesaler's independent grocery store customers.

For a Puerto Rican grocery chain investigated the prepared hamburger patty industry, and advised them on their equipment needs. Designed the layout of the facility.

RONALD M. ROSS
Associate

SELECTED MANUFACTURING EXPERIENCE

For a manufacturer of city transport buses acted as project manager for the construction of a new 120,000 square foot manufacturing plant. Directed a group of engineers responsible for production line layout, specification of tools and equipment, and materials management systems. Liaised with the construction general contractor and approved construction advances.

For a manufacturer of inter-city buses designed an extension to an existing production plant.

For a major Canadian manufacturer of electrical power transformers directed a group of analysts and production personnel responsible for changing the layout of a plant to permit installation of new production machinery.

For a major procery company directed a large group of tradesmen responsible for maintenance and project work in bakery, delicatessen, sausage and other food processing departments.

For a grain company designed an extension to the oil seed cleaning section of a grain elevator.

For a company operating four-colour rotogravure printing presses studied the work activities of the press crew and wrote sections of a rotogravure pressman's operating manual

RONALD M. ROSS
Associate

SELECTED INDUSTRIAL ENGINEERING EXPERIENCE

For a large department store company directed a group of engineers and analysts who developed work standards for workers in warehouses, workrooms, offices and truck delivery.

For a manufacturer of plumbing brass conducted classroom and in-plant training in work measurement and work simplification using predetermined time standards.

For a manufacturer of agricultural implements conducted classroom and in-plant training in work measurement and work simplification using predetermined time standards.

At the University of Wisconsin Extension, on two occasions delivered a paper on production of time-study standards using the computer.

RONALD M. ROSS
Associate

SELECTED EXPERIENCE IN TRAINING

Over a period of ten years lectured in mathematics, electronics theory, and airborne communications equipment to classes of military personnel.

For an international consulting company gave in-plant training in work measurement and work simplification to classes of managers, supervisors and technicians.

For a McGill University continuation course delivered a series of lectures in material handling technology.

PARKIN QUALIFICATIONS

The firm has carried out feasibility studies for the following athletic facilities:

Stadium Feasibility Study - Argonaut Football Club, Toronto

Technical Advisor - Mission Dome Incorporate re Toronto Stadium

Member Metropolitan Toronto Presentation Team in bid for 1976 Olympic Games

Proposal submitted for the Edmonton Omniplex

Feasibility Study on Sports and Recreation Complex in the Toronto Centred Region for the Province of Ontario and the Corporation of Metropolitan Toronto. Facilities included stadium, olympic-size swimming pool, ice arena, field house, outdoor playfields and courts.

Feasibility Study 18,000 Seat Multi-Sport arena - Can-Sport Ltd., Toronto

Preliminary design for Mississauga Athletic Complex, Mississauga, Ontario. Facilities include four ice rinks and olympic-size pool.

Gordie Howe Sports Complex, a 100,000 square feet of ice surface, 12 indoor tennis courts, offices, health club, coffee shop, observation gallery and jogging track.

SENECA COLLEGE OF APPLIED ARTS AND
TECHNOLOGY, CITY OF NORTH YORK,
ONTARIO.

Arts
Sciences
Business Administration
Libraries
Community Services
Physical Education
Recreational and Social Centres
Drama, T.V.
Radio
Secretarial

YORK UNIVERSITY,
CITY OF NORTH YORK,
ONTARIO.

3 practice football fields
field hockey, rugby and soccer fields
full scale track and field-football
field.
gymnasium facilites (Tait MacKenzie
Building) and an enclosed ice rink

PARKIN RESUMES

PAUL TAN DE BIBIANA **ASSOCIATE**

Education

B.Arch. 1970
University of Michigan

Professional Associations

Fellow,
Royal Society of Arts

Member,
Ontario Association of Architects

Member,
Royal Architectural Institute of Canada

Mr. Paul Tan de Bibiana has been a senior member of the Parkin Partnership design staff since 1971. He was a guest lecturer at the University of Guelph, 1975-76 and has been a part time lecturer at Ryerson Polytechnical Institute since 1973.

Mr. Tan de Bibiana has acted in a capacity of senior responsibility for the following projects –

Feasibility Study, Domed Stadium	Toronto
Health Sciences Complex	St. John's, Newfoundland
Phoenix House, office building	Toronto
Sports Complex, Gordie Howe Sports World	Mississauga
Art Gallery of Ontario, Stages I and II	Toronto
1500 Don Mills Road, office building	Don Mills
Proposed National Gallery of Canada	Ottawa
Bank of Montreal Central Computer Complex No. 2	Scarborough
Royal Canadian Mint, Design Feasibility Study	Ottawa
The Toronto Humane Society	Toronto
Proposed Ontario Congress and Trade Centre	Toronto
Bell Canada, Trinity Square, regional administration building	Toronto

Mr. Tan de Bibiana received special recognition in the annual *Japan Architect* magazine Shinkenchkiku Residential Design Competition for 1977.

PAUL T. KEENAN — **PRINCIPAL**

Education

Eng. Dip. 1958
St. Francis Xavier University

B. Eng. 1960
Nova Scotia Technical College

M.A.Sc. 1965
University of Waterloo

Professional Associations

Member,
Association of Professional Engineers of Ontario

Member,
Association of Professional Engineers of Newfoundland

Professional Experience

1960 - 61 Design Engineer	Robb Engineering Division, Dominion Bridge Company
1961 - 73 Design Engineer, Project Engineer, Associate	C. D. Carruthers & Wallace Consultants Limited
1973 - 78 Vice-President	Parkin Engineers Limited
1978 - President	Parkin Engineers Limited

Representative Projects

Women's College Hospital	Toronto
Canada Life Building	Toronto
D. B. Weldon Library, University of Western Ontario	London, Ontario
Social Sciences Complex, University of Western Ontario	London, Ontario
William Wrigley Plant	Toronto
Toronto Sun Publishing Co. Ltd., plant and offices	Toronto
Proposed National Gallery of Canada	Ottawa
Health Sciences Building, University of Ottawa	Ottawa
Bank of Montreal Central Computer Complex No. 2	Scarborough
Royal Ottawa Regional Rehabilitation Centre	Ottawa
1500 Don Mills Road, office building	Toronto
The Toronto Humane Society	Toronto

PETER H. WARREN

Education

Royal Military College
Kingston, 1951 - 52

B.Arch. 1958
University of Toronto

M. Arch. 1963
Yale University

Professional Associations

Member,
Ontario Association of Architects

Member,
Royal Architectural Institute of Canada

Member,
Royal Canadian Academy of Arts

Mr. Warren is Principal-in-Charge of Design for Parkin Partnership Architects Planners. While Associate in Charge of Design for John B. Parkin Associates and Parkin Architects Engineers Planners, he was involved in the design and planning of projects including —

Canada Systems Group, Computer Centre	Toronto
Seneca College of Applied Arts and Technology	Toronto
Department of National Defence Headquarters	Ottawa
Library Tower, Brock University	St. Catharines
Student Residence Village 1, Waterloo University	Waterloo
Founders, McLaughlin, Winters, and Stong College buildings York University	Toronto
National Life Assurance Company of Canada	Toronto
The Equitable Life of Canada	Waterloo
Expo Theatre, Expo '67	Montreal

Recent projects for which Mr. Warren was responsible for the design include —

Art Gallery of Ontario, Stages I and II	Toronto
Safeco Insurance Company of America, head office	Mississauga
Phoenix House, office building	Toronto
Parking Structure, Terminal II, Toronto International Airport	Toronto
McCutcheon Residence	Georgian Bay
Arcadian Court, renovation	Toronto
The Toronto Sun Publishing Co. Ltd., plant and offices	Toronto
Bank of Montreal Central Computer Complex No. 2	Scarborough
Proposed National Gallery of Canada	Ottawa
Bell Canada, Trinity Square, regional administration offices	Toronto
1500 Don Mills Road, office building	Don Mills

Feasibility studies which Mr. Warren has completed include —

Proposed Ontario Congress and Trade Centre	Toronto
Brant Inn, hotel and apartments	Burlington
Bank, head office building	Melbourne, Australia
Royal Canadian Mint	Ottawa

HARLAND C. LINDSAY

Education

Glasgow College of Building
1960-66

Strathclyde University, Glasgow
1966-67

Professional Associations

Fellow,
Royal Institution of
Chartered Surveyors (UK)

Fellow,
Institure of Quantity Surveyors (UK)

Fellow,
Chartered Institute of Arbitrators (UK)

President,
Canadian Institute of
Quantity Surveyors

Member,
Arbitrators Institute of Canada

Mr. Lindsay is Resource Director, General Manager and is responsible for Cost Control.

Mr. Lindsay has held senior positions with Olympia and York Developments Limited and David K. Lansdowne and Partners Limited. In the course of this employment, Mr. Lindsay was responsible for the management and cost control of buildings, furniture and equipment during programming, design and/or construction of a variety of multi-million dollars projects including –

First Canadian Place	Toronto, Ontario
Shell Centre	Calgary, Alberta
Bell Canada Administration Centre	Scarborough, Ontario
Proposed Regional Government Offices and Police Building	Peel Region, Ontario
Ministry of the Pilgrimage, administration building	Riyadh, Saudi Arabia
Civic Regional Building	Sudbury, Ontario

Health care facility projects in which Mr. Lindsay has provided cost control include –

Health Sciences Centre	St. John's, Newfoundland
St. Michael's Hospital, redevelopment programme	Toronto, Ontario
Health Sciences Building, University of Ottawa	Ottawa, Ontario
Health Sciences Building	Kingston, Ontario
Royal Ottawa Regional Rehabilitation Centre	Ottawa, Ontario
General Hospital	St. John's, Newfoundland
Bonavista Hospital	Bonavista, Newfoundland
Grace Hospital	St. John's, Newfoundland
Harbour View Hospital	Sydney Mines, Nova Scotia
St. Luke's Home for the Aged	St. John's, Newfoundland
Regional Hospital	Carbonear, Newfoundland
Central Newfoundland Hospital	Grand Falls, Newfoundland
Metropolitan Hospital	Windsor, Ontario
St. Joseph's Hospital	London, Ontario

IORTH YORK SITE

PROPOSED GORDIE HOWE ARENA

MISSISSAUGA, ONTARIO

ORDER OF MAGNITUDE ESTIMATE

OCTOBER 11, 1977

INTRODUCTION

1. DESCRIPTION : The project consists of a 7,500 seat multi-use arena, together with an adjoining community ice skating rink. There is also provision for 1,250 parking spaces at grade. A connecting roadway to the arterial road, a distance of roughly 700', has been included.

2. GENERAL : This Order of Magnitude estimate represents all direct and indirect construction costs with the exceptions as listed in Item # 9. below. The summary presentation is based on the standard elemental format as prescribed by the Canadian Institute of Quantity Surveyors.

3. GROSS FLOOR AREAS : These are: -

Multi-use Arena		142,200 SF
Community Rink		22,900 SF
	G.F.A.	165,100 SF

4. DOCUMENTATION : This estimate is based on sketch drawing to 1" = 50' scale and basic design criteria provided by the Architect.

5. METHODOLOGY : Information on the drawings has been interpreted into measurement for the various components making up each element. Assumptions have been made for these items as to their probable specifications, based on this firm's experience and information received from the Architect.
The work has been priced at rates considered competitive for the Toronto area at this time under a Stipulated Sum form of contract. We have assumed a construction schedule of approximately 12 months.

INTRODUCTION (CONT'D)

6. TAXES : All applicable taxes have been included.

7. CONTINGENCY : A Design Contingency of 5 % has been allowed. No allowance has been made for post contract changes.

8. ESCALATION : A separate allowance of 0.7 % per month should be added if the Tender Call is delayed beyond December 1977.

9. EXCLUSIONS : The following items have been excluded from this estimate: -

a. Professional Fees
b. Land Acquisition Costs
c. Financing Costs
d. Movable Equipment Costs
e. Loose and Soft Furnishings

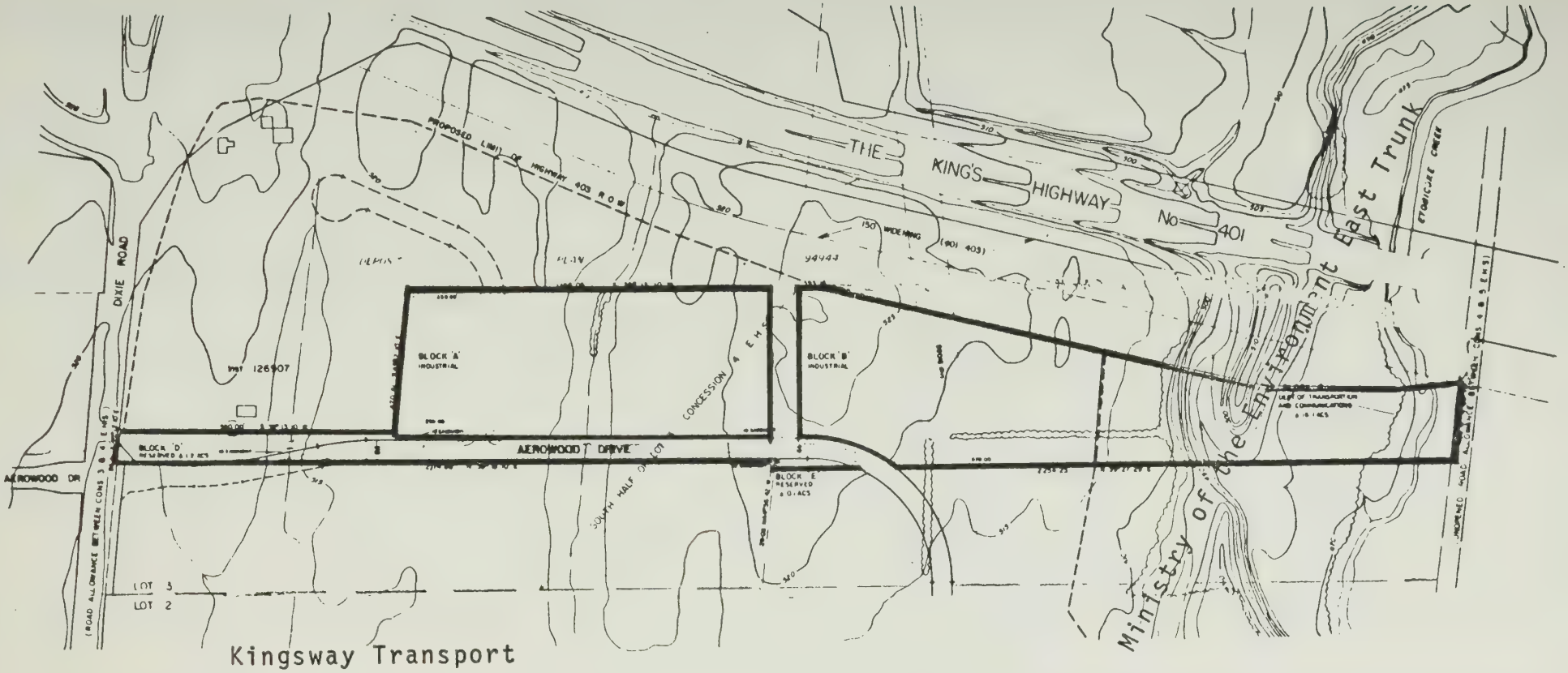
10. MAJOR ASSUMPTIONS : The following assumptions have been made relative to the design: -

a. Foundation: No adverse soil conditions; piling,caissons, etc. are envisaged.
b. Structure : Reinforced concrete frame with structural steel girder roof members.
c. Cladding : Roof: Felt and Gravel Roof.
Walls: metal siding with concrete block back-up
Steel framed glazed screens.

INTRODUCTION (CONT'D)

10. MAJOR ASSUMPTIONS (continued) :

d.	Partitions:	Blockwork and drywall partitions.
e.	Stairs :	Metal.
f.	Finishes :	Basic utility finishes.
g.	Fittings :	Includes arena seats at P.C. Sum of $ 20.00 each.
h.	Services :	Excludes air conditioning to main arena and community rink.
j.	Site Works:	Earthwork assumes grades will be adjusted to suit cut balancing fill. No imported material has been allowed for.



Kingsway Transport

Block 'A' - Arenas + Parking :	12.84 acres
Block 'B' - Future Development:	18.21 acres
Road Right of Ways	6.02 acres
Total Property	37.07 acres

Gordie Howe Sports World Limited
Parkin Partnership Architects Planners

Project: PROPOSED GORDIE HOWE ARENA — ORDER OF MAGNITUDE ESTIMATE
MISSISSAUGA, ONTARIO — Date: OCTOBER 7, 1977 — No: 1

	Element	Amount $	Total Cost $	Rate $/SF Floor Area		%	Comments
1	**Substructure**		120,400		0.73	2	
(a)	Normal foundations	43,000		0.26			
(b)	Basement excavations	52,400		0.32			
(c)	Special conditions	25,000		0.15			
2	**Structure**		1,329,100		8.05	23	
(a)	Lowest floor construction	206,900		1.25			
(b)	Upper floor construction	705,300		4.27			
(c)	Roof construction	416,900		2.53			
3	**Exterior Cladding**		682,000		4.13	12	
(a)	Roof finish	187,900		1.14			
(b)	Walls below ground floor	110,200		0.67			
(c)	Walls above ground floor	291,400		1.76			
(d)	Windows	19,500		0.12			
(e)	Exterior doors & screens	73,000		0.44			
(f)	Balconies & projections	-		-			
4	**Interior Partitions**		235,000		1.42	4	
(a)	Permanent partitions	182,000		1.10			
(b)	Movable partitions	13,000		0.08			
(c)	Doors	40,000		0.24			
5	**Vertical Movement**		15,000		0.09		
(a)	Stairs	15,000		0.09			
(b)	Elevators & escalators	-		-			
6	**Interior Finishes**		262,400		1.59	4	
(a)	Floor finishes	96,100		0.58			
(b)	Ceiling finishes	66,300		0.40			
(c)	Wall finishes	100,000		0.61			
7	**Fittings & Equipment**		248,000		1.50	4	
(a)	Fittings & fixtures	248,000		1.50			
(b)	Equipment	-		-			

MISSISSAUGA, ONTARIO — Date: OCTOBER 11, 1977 — No: 2

Element	Amount $	Total Cost $	Rate $/SF Floor Area		%	Comments
8 Services		1,397,000		8.46	24	
(a) Electrical	422,000		2.56			
(b) Plumbing & drainage	303,000		1.83			
(c) Heating, ventilation & air conditioning	672,000		4.07			
9 Overheads & Profit 10%		429,100		2.60	7	
Net Building Cost		4,718,000		28.57	80	
10 Site Development		900,000		5.45	15	
(a) General	491,000		2.97			
(b) M & E site services	409,000		2.48			
(c) Alterations	-		-			
(d) Demolition	-		-			
11 Contingencies 5%		281,000		1.71	5	
Total Project Cost		5,899,000		35.73	100	

Multi-use arena = 142,200 SF
Community Rink = 22,900 SF
G.F.A. = 165,100 SF

TREVOR GARWOOD-JONES
QUALIFICATIONS

Awards (cont'd)

Village Hill Condominiums, Hamilton - Ontario Masons' Council Award of Merit, 1978

Maranatha Homes, Burlington - Canadian Housing Design Council Award for Residential Design, 1978

Art Gallery of Hamilton - O.A.A. Design Award, Hamilton Chapter, 1979

Publications and Papers:

"Design Concepts and Auditorium Acoustics" - International Theatre Colloquium, Montreal, 1970

"Space in Response to Programme" - International Symposium for Theatre Architects and Educators, Toronto, 1971

"From a Patient's Point of View" - Institute of Long-Term Care Planning sponsored by Ontario Hospital Association, Toronto, 1972. Key-note speaker.

"Recent Trends in Modern Architecture" - University of Waterloo, 1973

"The Architect's Role in Hospital Planning" - University of Ottawa, 1974

Trevor Garwood-Jones has been responsible for much of the replanning of the downtown core of Hamilton, in particular the design of Hamilton Place, the Art Gallery of Hamilton, Hamilton Trade & Convention Centre, and the Provincial Government Office Tower.

Trevor P. Garwood-Jones Architects/Engineers/Planners
The Cooperage 185 Young St Hamilton Ontario L8N 1V9 528-0468

CULTURAL/RECREATIONAL PROJECTS

Project	:	HAMILTON PLACE THEATRE AUDITORIUM
Location	:	Hamilton, Ontario
Client	:	City of Hamilton
Completion Date	:	1973
Construction Cost	:	$9,600,000.00

Project	:	THE ART GALLERY OF HAMILTON
Location	:	Hamilton, Ontario
Client	:	The Art Gallery of Hamilton
Completion Date	:	October 1977
Construction Cost	:	$4,258,000

Project	:	THE TRADE AND CONVENTION CENTRE
Location	:	Hamilton, Ontario
Client	:	Ministry of Government Services
Completion Date	:	1982
Construction Cost	:	$27,900,000

Project	:	MOHAWK COLLEGE LIBRARY ADDITION
Location	:	Hamilton, Ontario
Client	:	Mohawk College of Applied Arts and Technology
Completion Date	:	October 1979
Construction Cost	:	$1,721,000.00

Project	:	FORT ERIE PUBLIC LIBRARY ADDITION
Location	:	Fort Erie, Ontario
Client	:	Town of Fort Erie
Completion Date	:	Scheduled July 1980
Construction Cost	:	$700,000.00

.../2

Associates John C. Knox, B.Arch., MRAIC
R.C.A. Nethercot, B.Sc. (Hons.), MICE, P.Eng.
Joseph Bolf, MAATO

Trevor P. Garwood-Jones Architects/Engineers/Planners
The Cooperage 185 Young St Hamilton Ontario L8N 1V9 528-0468

CULTURAL/RECREATIONAL PROJECTS

Project	:	DUNDAS CENTRE FOR THE ARTS
Location	:	Dundas, Ontario
Client	:	Dundas Little Theatre, Inc.
Completion Date	:	May 1980
Construction Cost	:	$268,000.00

Project	:	PATRICK MILES GALLERY
Location	:	Hamilton, Ontario
Client	:	Patrick Miles
Completion Date	:	1974
Construction Cost	:	$55,000.00

Project	:	DUNDAS COMMUNITY SWIMMING POOL
Location	:	Dundas, Ontario
Client	:	The Town of Dundas
Completion Date	:	1973
Construction Cost	:	$380,000.00

Project	:	HILLSIDE RACQUETS CLUB
Location	:	Ancaster, Ontario
Client	:	Board of Directors, Hillside Racquets Club
Completion Date	:	1978
Construction Cost	:	$1,180,000.00

Project	:	HIGHBURY RACQUETS CLUB
Location	:	London, Ontario
Client	:	Mr. V. Mancini
Completion Date	:	1978
Construction Cost	:	$1,350,000.00

Project	:	CEDAR SPRINGS RACQUET CLUB ADDITION
Location	:	Burlington, Ontario
Client	:	Mr. V. Mancini
Completion Date	:	1979
Construction Cost	:	$265,000.00.00

.../3

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CULTURAL/RECREATION PROJECTS

Project	:	MOHAWK COLLEGE TENNIS CLUB
Location	:	Hamilton, Ontario
Client	:	Mohawk College of Applied Arts and Technology
Completion Date	:	1978
Construction Cost	:	$580,000.00

Project	:	THE CHILDREN'S MUSEUM
Location	:	Hamilton, Ontario
Client	:	The City of Hamilton
Completion Date	:	1979
Construction Cost	:	$30,000.00

Project	:	YOUNG WOMEN'S CHRISTIAN ASSOCIATION
Location	:	Hamilton, Ontario
Client	:	Young Women's Christian Association
Completion Date	:	1967
Construction Cost	:	$2,560,000.00

Project	:	MILLS MEMORIAL LIBRARY ADDITION
Location	:	Hamilton, Ontario
Client	:	McMaster University
Completion Date	:	1972
Construction Cost	:	$1,259,000.00

Project	:	THUNDER BAY ARTS COMPLEX
Location	:	Thunder Bay, Ontario
Client	:	Thunder Bay Arts Council
Completion Date	:	Feasibility Study 1977
Construction Cost	:	

Project	:	RIDGEWAY BRANCH PUBLIC LIBRARY
Location	:	Ridgeway, Ontario
Client	:	
Completion Date	:	Feasibility Study 1978
Construction Cost	:	

.../4

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CULTURAL/RECREATION PROJECTS

Project	:	CHILDREN'S WADING POOL & SHELTER
Location	:	Dundas Riding Park, Ontario
Client	:	Dundas Rotary Club
Completion Date	:	1972
Construction Cost	:	$15,000.00

Project	:	HILLFIELD-STRATHALLAN COLLEGE GYMNASIUM
Location	:	Hamilton, Ontario
Client	:	Hillfield-Strathallan College
Completion Date	:	1975
Construction Cost	:	$543,685.00

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R.C.A. Nethercot, B.Sc. (Hons.), MICE, P.Eng.
Joseph Bolf, MAATO

TREVOR GARWOOD-JONES
RESUMES

CURRICULUM VITAE
TREVOR P. GARWOOD-JONES

Trevor P. Garwood-Jones studied architecture at Cambridge University and the College of Architecture, Hammersmith, London, England. Gained the Governor's Gold Medal for student graduating with the highest academic standing in 1953. Did post-graduate work at London University on structural design. Visiting lecturer in design for two years at the Architectural Association School of Architecture in London. Is a visiting design critic at the School of Architecture, Waterloo University.

Member of:

Royal Architectural Institute of Canada
Royal Institute of British Architects
Ontario Association of Architects
Gerontological Society
United States Institute for Theatre Technology
The Solar Energy Society of Canada

Awards:

Mills Memorial Library, McMaster University - O.A.A. Design Award, Hamilton Chapter, 1965

Hamilton Place - O.A.A. Design Award, Hamilton Chapter, 1973

Patrick Miles Gallery, Hamilton - O.A.A. Design Award, Hamilton Chapter, 1974

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John E. Ashwood (Member ITE) is Project Manager with De Leuw Cather, Canada Ltd. in their London, Ontario office. After working for the Road Research Laboratory, a consulting engineer and a local authority in England, he joined Frederic R. Harris Inc. in Stamford, Connecticut in 1968. His experience during the past six years has included TOPICS work, urban renewal and many facets of transportation engineering. Ashwood has worked on highway and economic feasibility studies in Ghana and Trinidad and is now project manager for the Windsor, Ontario, Traffic Operations Study. He graduated from the University of Connecticut and is taking a Masters degree in Engineering from the University of Western Ontario. He is a member of the National Society of Professional Engineers, British Computer Society and of ITE

sportation planning considerations for new stadia

by John E. Ashwood

he current popularity of specta- sports, particularly football, and casts of even greater public in- st in the future, has led to a i-boom in the construction of stadia. Current interest in foot- can be judged by the fact that ne 1971 season professional all- e attendance was 6.5 per cent ier than the previous season and ılar games drew 10,076,035 ctators compared with 9,533,333 970. This figure represents 95.2 cent of capacity, up from 90.6 cent in 1970.[1] Preliminary res for the 1972/3 season show eases over 1971/2.

The two major advantages that a enjoys in having professional rts franchises are *publicity* and *itional income*. The two are ely related: bringing a city's ne constantly to the attention of public is thought to attract new iness to the area. According to Chamber of Commerce, more n $20,000,000 accrued to the cinnati area in 1970 resulting n the opening of Riverfront Sta- m, and New Orleans hopes to n some $43 million from the ning of the Louisiana super- ne.[2] If the two figures quoted are reased by the multiplier effect, usually estimated at between 3 and 4, then it can be seen that the estimates of annual returns are approximately $70 million and $155 million respectively.

Team owners, aware of the potential of their product, and cities wishing to expand their economic base, have created a competitive market which goes some way to explaining the comparitively large number of stadia recently constructed or being considered. In addition, cities and owners desire to provide better service for fans, both to stop them from being lured away by television or competitors, and to improve and increase patronage by providing a superior package. If improvements to existing facilities (often difficult and expensive to achieve) are unacceptable, one alternative to a city about to lose a franchise is for it to provide a new stadium.

However, even disregarding the economic feasibility of such ventures, the planning and construction of new stadia in areas often selected for reasons other than planning, present special problems, even more so when they are close to, or in downtown. It is the purpose of this article to discuss these planning problems in general, especially those associated with transportation, by making reference to work recently undertaken in Baltimore to determine the effect of a proposed downtown stadium upon an adjacent, proposed residential area.

recent developments

Perhaps the forerunner of the new type of sports stadium, offering superior facilities, was the Houston Astrodome, opened in 1965. Since then other cities have decided to support construction of new stadia including Pittsburgh, Cincinnati, St. Louis, Atlanta and New Orleans. Some physical characteristics of selected stadiums are presented in Table 1 for comparison purposes.

It can be seen that there is a trend to construct in, or close to downtown, and in the majority of cases the area for development is limited. It has been noted[3] that there are advantages to siting large-scale facilities downtown, including ease of access from hotels and transportation terminals, and recent developments seem to support this contention. It also is apparent that the supply of stadium parking is limited at the downtown locations;

Reprinted from *Traffic Engineering*, July, 1973

Table I
Physical Characteristics of Selected Stadia Recently Constructed

tadium	Area of Stadium Complex (acres)	Location	Metropolitan (SMSA) Pop. (millions)	Baseball			Football			Parking	
				Stadium Capacity	% fans arriving by car	Car Occupancy	Stadium Capacity	% fans arriving by car	Car Occupancy	On-Site	Within walking distance
tlanta tadium, tlanta	60	1 mile from CBD	1.39	51,400	87	3.04	58,800	66	2.72	4,400	5,500
iverfront tadium, incinnati	48	Downtown on riverfront	1.38	52,000			56,200	90	3.25	4,550	20,000
strodome, ouston	260	6 miles from CBD	1.99	45,000			50,000			30,000	
rrowhead tadium, ansas City	370	10 miles from CBD	1.25	42,000			78,000			16,000	
ouisiana uperdome, ew Orleans	55	Close to French Quarter	1.05	56,500			78,000			5,000	
eteran's tadium, hiladelphia			4.82	55,000	94	2.8	65,000	94	2.8	6,800	5,000
Rivers tadium, ittsburgh	80	Downtown on riverfront	2.40	50,300	70	3.47	50,300			4,400	24,000[1]
usch Memorial tadium, St. ouis	85	Downtown	2.36	50,100			50,100			7,500	10-11,000
roposed tadium pprox. altimore	50	Downtown	2.07	55,000	70	2.5	70,000	72	3.5	6,500	7,600

[1] Within 1 mile

limitations generally are due vailability of alternate travel es and lack of on-site space. proposed stadium studied in more can be seen to be rela- typical of recent develop- s.

design considerations

unnicut, in an excellent arti- presented design parameters proposed downtown stadium attle. This section briefly dis- s application of those parame- in Baltimore and extends the es to include pedestrian traffic capacity of the adjacent street m highlighting particular con- ations as they arose in the Bal- e study.

st as in highway design, where ot justified to design a highway commodate the highest traffic nes expected, so it is not omically justified to plan sup- ng facilities (such as streets parking structures) for a stadi- when it is filled to capacity. equences of the pattern of st attendances expected at the um should be investigated and ould be possible, either from experience if a replacement um is considered, or from the et forecasts if a new market is being studied, to forecast dances for the principle sports played at the stadium, usually all and baseball.

all

Baltimore, attendances at foot- games during the 1971/2 sea- vere noted and are shown as a ntage of the capacity (60,238) emorial Stadium.

Table 2
1971/2 Attendances: Baltimore Colts

onents	Attendance (% of capacity)
York "Jets"	93.7
eland "Browns"	94.4
burgh "Steelers"	100.0
Angeles "Rams"	95.9
lo "Bills"	97.1
mi "Dolphins"	100.0
England "Patriots"	96.2

choice of 95 per cent of capac- s a design crowd indicates that nly five occasions per year d this figure be (slightly) ex- ed. Considering the number of r attendance pre-season games, choice of this design crowd is acceptable. The new stadium proposed for downtown Baltimore is planned to hold 70,000 spectators for football games. A crowd of approximately 65,000 was assumed for design purposes.

baseball

A study of attendances of Baltimore Oriole games played during the 1971 season revealed the following pattern of highest attendances:

Table 3
1971 Attendance: Baltimore Orioles

World Series (At Baltimore): 53,239
53,229
47,291
44,174

Regular Games

Sun.	5/ 9	43,307[b]	Wed.	9/29	21,028
Sun.	5/23	40,267[b]	Sun.	8/22	20,632[a]
Fri.	6/18	39,619	Tues.	7/27	20,456[c]
Wed.	4/ 7	36,423[a]	Sun.	7/25	19,096[b]
Sun.	6/20	31,359[a]	Sun.	8/29	18,877[b]
Sun.	4/18	30,427[a]	Sun.	4/11	18,624[b]
Fri.	8/20	29,616	Tues.	9/28	18,195[c]
Wed.	8/ 4	26,849	Fri.	5/21	17,528
Sat.	6/19	26,175	Mon.	6/28	17,034
Fri.	7/ 9	24,374	Sat.	8/28	16,996[c]
Wed.	7/28	22,169	Mon.	9/ 6	16,088[b]
Sat.	8/21	22,107	Sun.	7/11	16,071[a]
Sat.	6/12	21,586	Fri.	6/11	15,959
Sat.	7/10	21,404[c]	Thurs.	6/17	15,528
Tues.	6/29	21,299	Fri.	7/23	14,957

Note: [a] day games
[b] twin bills (2:00 start)
[c] twin bills (5:30 start)
Remainder night games

If these attendances are plotted on a bar chart (figure 1) it is more easily seen that, following the principle of thirtieth-highest-hour volume for highway design, choice of a design crowd of approximately 23,000 would lead to an economic design. Attendance would exceed the design crowd on approximately 15 occasions per year (if the Orioles were in the World Series). Choice of a design crowd of 25,000 would allow for the desired generation of additional spectators to the new facility.

the most adverse design condition

If a sports complex is being considered, for instance a stadium and an arena on the same site, then investigation of simultaneous scheduling of events at each facility must be undertaken. Luckily, conflicts usually are not a problem since judicious scheduling, usually coordinated by a common authority, can overcome the potential problem of both facilities generating peak attendances at the same time.

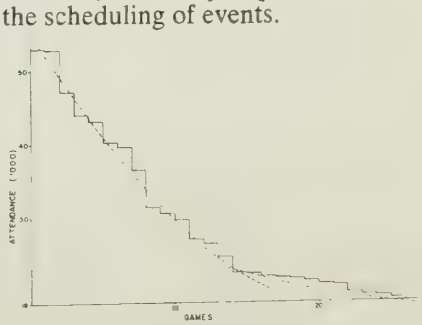
design year

Since it is hoped that attendance will be relatively consistent from year to year the design year, for physical analyses, should be based on a convenient year in which adverse conditions for supporting facilities are acknowledged; this may be immediately upon opening the new stadium—so long as these conditions plainly are not temporary—or some future year.

For the Baltimore study 1990 was chosen for purposes of the analyses since traffic projections for that year were available and phase 1 of the proposed rapid transit system would be operational.

design hour

So long as the full significance of utilizing a low peak hour factor for capacity analyses is realized, there seems to be no justification for using time periods of other than one hour for analysis. Which hour to use, however, is mainly dependent upon the scheduling of events.



ORIOLE'S HIGHEST ATTENDANCES · 1971
FIGURE 1

or football games the tendency
he east) is for games to begin
oximately at 2:00 p.m. on Sun-
and the hour immediately
to, or after a football game
ld be analyzed depending upon
ground traffic and any proba-
directional traffic operations.
most adverse condition should
nalyzed thoroughly.

vestigation of baseball sched-
and attendance probably will
ate that a "design crowd" game
kely to be a weekday evening
e and in the usual care it is
opriate to analyze traffic oper-
ns for the hour proceeding such
me.

parking

he location and size of parking
ities is one of the major trans-
ation considerations. For in-
ce, a generous supply of on-site
king in a downtown area well
ed by public transit could be
dvantageous in some respects,
by concentrating the parking—
hence the traffic—in a small
congestion is probable. Also it
not recommended that parking
ply be based on zoning require-
nts as it is in many cities[5] but
ier upon full examination of the
wn, or projected, factors.

By surveys at the stadium to be
laced, market projections and
veys at similar facilities it should
possible to predict the modal
t of spectators with some confi-
ce. For Baltimore the antici-
ed modal split is shown in Table

Table 4
Design Crowd Travel Mode

avel Mode	Number of Spectators Baseball	Football
us transit		
Regular and special	450	2600
Charter	2000	5000
Walk (from home)	250	800
rivate Auto	17700	46800
apid transit	4600	9800
OTALS	25000	65000

For baseball games, it was esti-
ated that the maximum distance a
rson is willing to park from the
adium is about 2,400 feet; it was
sumed that football fans would be
lling to walk as far as 3,000 feet.
ese distances, based on the obser-
tions of officials at existing
wntown stadium locations, would
ke an average spectator approx-
ately 15 and 20 minutes to walk.

An inventory of all parking spaces was undertaken based on current usage, with allowances for planned parking. The inventory was broken down into public and private parking, and that which would be available within 2400 and 3000 feet of the complex was calculated based upon the following assumptions:

—**Ten percent** *of all private parking would be available for both baseball and football games.*

—**Seventy-five percent** *of all public parking would be available for baseball.*

—**Seventy percent** *of all public parking would be available for football.*

Table 5 shows the total number of parking spaces expected in the study area and Table 6 summarizes the number of spaces available (including 6,500 spaces to be provided on-site).

Table 5
Planned Parking Spaces

	curb[a]	off-street private	off-street public	total	total spaces
Stadium site	—	—	—	—	6500
Within 2400' radius	960	3500	4350	7850	8810
Cumulative	960	3500	4350	7850	15310
2400' to 3000' radius	230	3150	3770	6920	7150
Cumulative	1190	6650	8120	14770	22460

Note: [a] Only spaces with "no time limit"

Investigations at other downtown stadia had revealed that a car occupancy ratio of approximately 3.5 could be expected at football games. This would be larger than for baseball games and tends to be directly proportional to crowd size—a useful finding since the required parking therefore tends to remain constant. For baseball games a ratio of 2.5 was considered realistic. Consequently the number of parking would be sufficient to accommodate the number required, 7080 and 13,- spaces available for baseball and football games, 10,830 and 13,680 400 respectively. These figures are obtained by dividing the figures in Table 4 by the car occupancy factors.

Special provision must be considered for taxi drop-offs, bus charter parking and scheduled and supplementary bus routing and drop off points. Reserved parking for special box accommodation, if it is provided, also should be considered.

It may be possible in some cases to combine the use of parking facilities. For instance, in a downtown or urbanized area, stadium parking could be made available to the general public during the working hours in the week, whereas in the evenings and on Saturdays and Sundays use of public parking for stadium users could be appropriate.

vehicular traffic

Surveys undertaken at the stadium to be replaced, or market projections for a new venture, should give a reliable indication of the origin of spectators. Reliance upon season ticket holders' addresses should only be placed if they form a significant proportion of the spectators, which is becoming increasingly the case for football games.

Using survey information and projected modal split, matrices were developed for baseball and football spectators attending the proposed stadium. These are shown in Table 7.

Using the matrices, autos and buses were assigned to the major access routes of the study area. For charter bus travel the number of spectators arriving by bus was divided by 40 (assumed occupancy) and then multiplied by 3.0 to give (approximately) the equivalent number of passengers cars. The number of regular buses (which include special loop services) was obtained in a similar manner except that an occupancy factor of 30 was assumed.

Table 6
Parking Spaces Available to Spectators

type facility	available for baseball	available for football
Private	350	660
Public	3260	5690
Curb	720	830
Stadium Site	6500	6500
	10830	13680

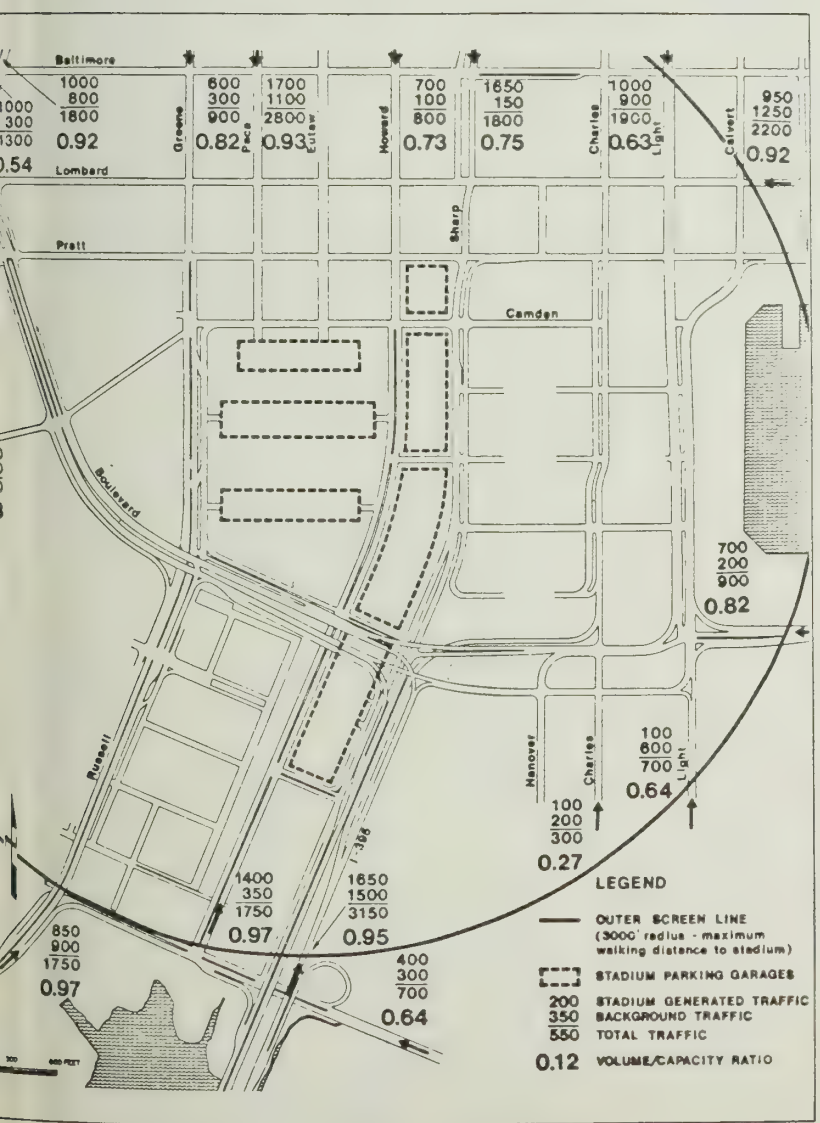
Table 7
Projected Origin & Travel Mode Matrices

—Football—

gin	Crowd by Travel Mode: Auto	Reg. Bus	Charter Bus	Subway	Walk	Total
timore						
City	16600	1500	0	5800	800	24700
County	17700	1050	0	4000	0	22750
Rem. Met.	2750	0	500	0	0	3250
rea						
ryland	3700	0	1500	0	0	5200
t of State	6100	0	3000	0	0	9100
als	46800	2600	5000	9800	800	65000
of Vehicles	13400	260	375	—	—	14035

—Baseball—

timore						
City	6300	300	0	2650	250	9500
County	6650	150	0	1950	0	8750
Rem. Met.	350	0	400	0	0	750
ryland	1650	0	600	0	0	3750
t of State	2750	0	1000	0	0	3750
als	17700	450	2000	4600	250	25000
of Vehicles	7080	45	150	—	—	7275



capacity analyses

Capacity analyses should be carried out by comparing projected traffic volumes to the capacity of the street system. One method of undertaking this determination is to draw two screen lines around the stadium, and for each street intercepted by a screen line compare the traffic volumes assigned to that street with its capacity. For satisfactory service a ratio less than unity should be measured on each street.

The periods of one hour before and after football games (usually held on Sundays) were chosen for analysis since football games, combined with background traffic, generate more adverse conditions than baseball games. The background traffic at these periods is approximately 5 per cent of the AADT based on measured volumes in Baltimore.

outer screen line—inbound traffic

An outer screen line of radius 3,000 feet with a center on the stadium site, was drawn. This screen line was chosen because all vehicles destined for the stadium (14,300 including taxis and special buses) cross the screen line. Stadium generated traffic and background traffic were compared with the *capacity*—the maximum service volume at a level of service estimated using the Highway Capacity Manual.

For the street system to function satisfactorily the volume/capacity ratio must be less than unity. This ratio is shown for each inbound street in Figure 2 and Table 8. It can be seen that on no street is the ratio greater than unity and a satisfactory level of service thus is indicated for the street system. Similar analyses indicate that outbound movements are satisfactorily catered for as well.

inner screen line—inbound traffic

The inner screen line was drawn surrounding the stadium parking garages and it is apparent that all vehicles parking in the garages (assumed to be the sum of garage capacities, or 6,500) must cross the screen line.

In a manner similar to the previous analyses the inbound stadium traffic and background traffic are shown on the inbound streets in Figure 3 and listed in Table 9. The table indicates that the street system immediately surrounding the garages should function satisfactorily prior to stadium events.

er screen line—outbound traffic

a similar analysis it is shown the street system immediately unding the stadium garages is factory to accommodate the cted traffic volumes. Figure 4 Table 10 present the details. n a transportation point of view feasible to construct a stadi- arena complex on the site se- d and it has been shown that street system would have suffi- t capacity to serve the demands stadium generated and back- nd traffic. Sufficient parking ld be available in the service of the stadium if 6,500 spaces e to be constructed on-site.

circulation

t can be seen from Figures 3 and hat a circulation pattern is indi- d based upon:

—no left turn movement across fic

—right turn in and out for garage fic

—use of one-way, or separated dways

—minimum traffic conflicts.

Although the plan is preliminary should prove possible to adopt a culation pattern similar to that own, in which case the advan- es stemming from minimizing ffic conflicts—safer travel, mini- m delays, etc.—can be achieved.

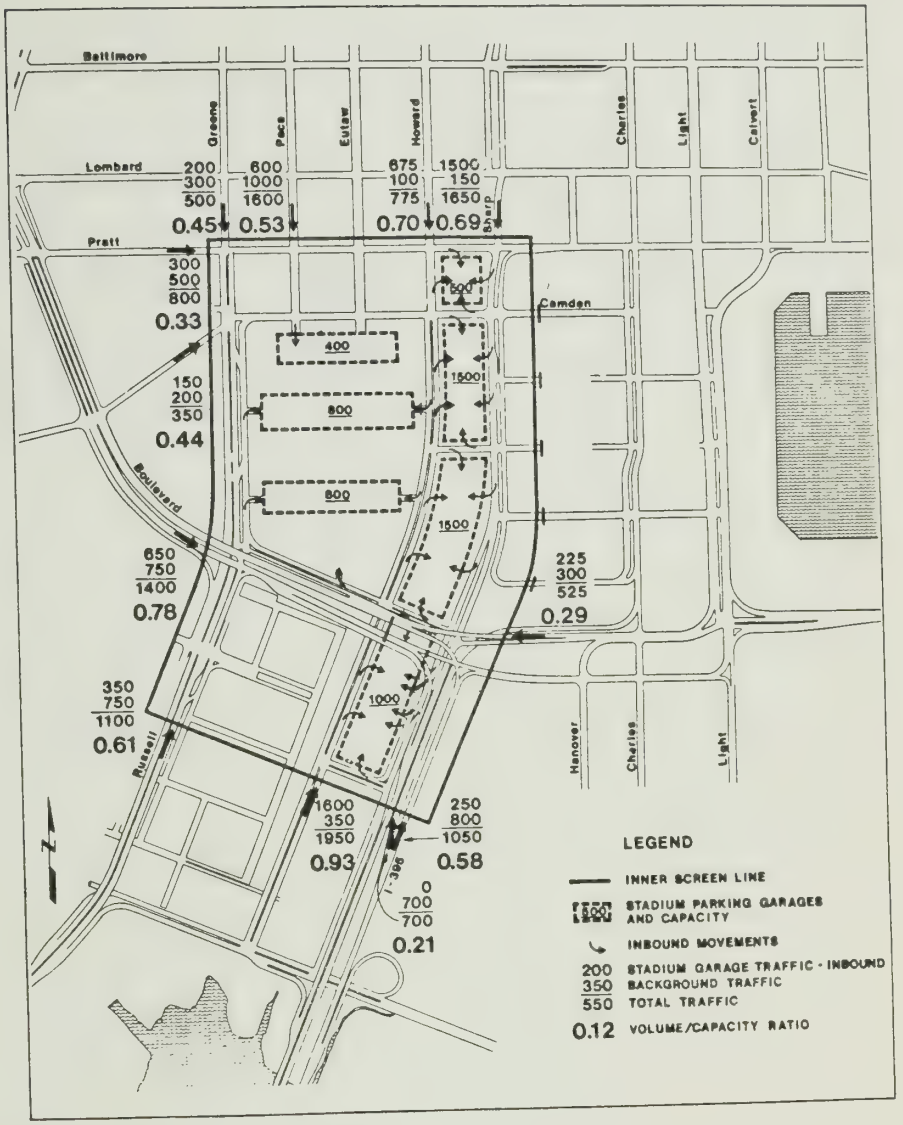


Fig. 3

Table 8
Volume/Capacity Relationship on Streets Entering the Outer Screen Line
Hour before Stadium Events—1990

Street	Stadium Traffic	Street Traffic	Total Traffic (V)	Street Width[1]	"Capacity" (C)[2]	V/C
1. Greene	699	300	900	22′	1,100	0.82
2. Paca	1,700	1,100	2,800	55′	3,000	0.93
3. Howard	700	100	800	22′	1,100	0.73
4. Sharp	1,650	150	1,800	44′	2,400	0.75
5. Light (n)	1,000	900	1,900	55′	3,000	0.63
6. Lombard	950	1,250	2,200	44′	2,400	0.92
7. Key H'wy	700	200	900	22′	1,100	0.82
8. Light (s)	100	600	700	22′	1,100	0.64
9. Charles (s)	100	200	300	30′	1,100	0.27
10. Hanover	0	900	900	30′	1,100	0.82
11. Fort Ave.	400	300	700	22′	1,100	0.64
12. I-395	1,650	1,500	3,150	36′	3,300+	0.95
13. Howard St. Ext.	1,400	350	1,750	33′	1,800	0.97
14. Russell	850	900	1,750	36′	1,800	0.97
15. Washington	500	200	700	15′	800	0.88
16. Pratt	1,000	500	1,500	44′	2,400	0.63
17. Baltimore Ave.	1,000	300	1,300	44′	2,400	0.54
18. Boulevard	1,000	800	1,800	36′	1,950	0.92
	15,300	10,550	25,850	—	32,950	0.81

Notes: [1] In direction of travel
[2] Service volume at level of service C.

pedestrian traffic

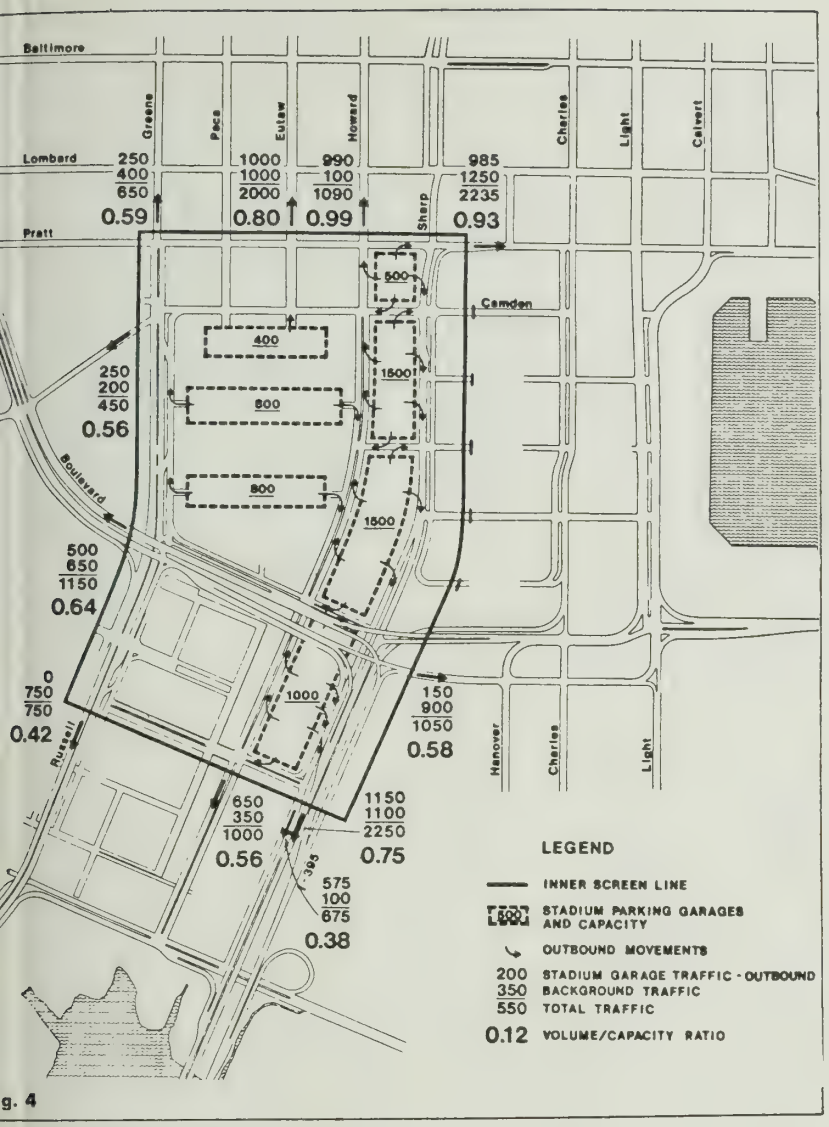
Pedestrian traffic at stadiums is generally composed of three groups:

Public Transit Pedestrian Traffic: Subway and bus services discharge their passengers some distance from the stadium, in the former case there being no choice of terminal point whereas in the case of bus service consideration will lead to the optimum routing and discharge point.

Park and Walk Pedestrian Traffic: Spectators arriving by car who must walk to the stadium after parking their car.

Walk from Home Pedestrian Traffic: Depending upon the location of the stadium there will be some pedestrian traffic walking from their homes to the stadium.

All the pedestrian traffic can be considered in a similar manner and in the physical design for the stadium it is important to separate, as far as possible, vehicular and pedestrian traffic. Pedestrian/vehicular sep-



g. 4

ion can be achieved in only two s:

ime separation — where vehi- and pedestrians share the same ce at different times, and

spatial separation—where they share the same time in different space.

The former separation has one major advantage; it is normally more economical than providing physical vehicular/pedestrian separation. However from most other points of view, notably safety and avoidance of delay, provision of spatial separation should be sought.

Pedestrian subways usually offer about half the rise and fall of pedestrian bridges and are often environmentally preferable but have disadvantages of lack of safety to pedestrians from crime, maintenance and cost. In the Baltimore study pedestrian traffic to football games was predicted to be composed of the following types, broken down by quadrant of origin.

Consequently, it is expected some 37,800 people would walk to the stadium (including people who park their vehicles close to the stadium and people walking from bus drop off points). The remaining spectators would park their vehicles on-site, in the 6500 space parking structures.

Pedestrian volumes of this magnitude must be handled by providing spatial separation from vehicular traffic so that the design of these facilities becomes an important part of the planner/architect's considerations. Additional justification for provision of the facilities can be found in the facts that the site considered in Baltimore is adjacent to urban renewal areas already providing separate pedestrian facilities; complete redevelopment of the site is being considered; and two subway stations with their associated pedestrian treatments are to be constructed close-by, allowing integration of pedestrian facility design between redevelopment area, subway and stadium. In addition, since the stadium is to be located downtown, its advantageous location should be exploited by encouraging the movement of spectators between downtown generators and the stadium.

Accepted design standards for pedestrian facilities are available,[6] but it should be noted that ramps generally are recommended for changes of elevation catering to large numbers of pedestrians, not so much because of their capacity (approximately 25 per cent more than stairs) but because of their safety. Slopes of 1 in 6 or 8 are acceptable for large facilities.

Table 9
Volume/Capacity Relationship Entering The Inner Screen Line Hour Before Stadium Events—1990

reet	Stadium Traffic	Street Traffic	Total Traffic (V)	Street Width[1]	"Capacity" (C)[2]	V/C
oward	675	100	775	22′	1,100	0.70
arp	1,500	150	1,650	44′	2,400	0.69
oulevard (e)	225	300	525	36′	1,800	0.29
395 (local)	250	800	1,050	33′	1,800	0.58
395 (express)	0	700	700	36′	3,300+	0.21
oward St. Ext.	1,600	350	1,950	33′	2,100	0.93
ussell	350	750	1,100	36′	1,800	0.61
oulevard (nw)	650	750	1,400	36′	1,800	0.78
Vashington	150	200	350	15′	800	0.44
reene	200	300	500	22′	1,100	0.45
aca	600	1,000	1,600	55′	3,000	0.53
ratt	300	500	800	44′	2,400	0.33
	6,500	5,900	12,400	—	23,400	0.52

lotes: [1] In direction of travel
[2] Service Volume at level of service C.

general considerations

Complete redevelopment of the site which is to include the stadium is not uncommon, and it usually is necessary to develop tax producing

tures on the adjacent land. e structures in turn will be de- ped by the private sector and d cater in part to stadium users— as restaurants and hotels. Dual e of facilities has been men- ed earlier with respect to shared ing between the stadium and cent land uses, and this sort of ionship can be accentuated by plimentary development.

he importance of signing for ve- lar and pedestrian traffic both he stadium and on route to it t be emphasized, and recent de- pments in the art—notably at past two Olympic Games sites[7] uld be investigated. If a traffic ulation system is to be recom- ded which minimizes delay by ing traffic to a predetermined

Table 10
Volume/Capacity Relationship on Streets Leaving the Inner Screen Line Hour After Stadium Events—1990

Street	Parking Garage Traffic	Street Traffic	Total Traffic (V)	Street Width[1]	"Capacity" (C)[2]	V/C
Howard (n)	990	100	1,090	22′	1,100	0.99
Pratt	985	1,250	2,235	44′	2,400	0.93
Boulevard	150	900	1,050	36′	1,800	0.58
I-395 (express)	1,150	1,100	2,250	36′	3,300+	0.75
I-395 (local)	575	100	675	33′	1,800	0.38
Howard St. Ext.	650	350	1,000	33′	1,800	0.56
Russell	0	750	750	36′	1,800	0.42
Boulevard (nw)	500	650	1,150	36′	1,800	0.64
Washington	250	200	450	15′	800	0.56
Greene	250	400	650	22′	1,100	0.59
Eutaw	1,000	1,000	2,000	44′	2,400	0.80
	6,500	6,800	13,300	—	20,100	0.65

Notes: [1] In direction of travel
[2] Service volume at level of service C.

Table 11
Pedestrian Volumes

Origin Quadrant	Via subway (station)	Pedestrian Volumes From home	Remainder
NE	3500 (Charles Center)	200	12,400
SE	1300 (Inner Harbor)	200	2,100
SW	2700 (Leadenhall)	120	800
NW	2300 (Lexington Market)	280	4,700
Totals	9800	800	20,000

h then the success of the system lependent upon the efficiency of signing. Pedestrians, too, must directed adequately, especially en it is realized that more than ,000 pedestrians will be destined individual locations within the dium. Some form of coordination d coding between parking space d stadium seat should be investi- ted to reduce vehicular and destrian travel paths.

conclusions

Like most transportation planning rocesses, the potential for excellent velopment of a stadium site exists the engineer is consulted early in e project, and if considerable re- velopment is involved. However, confronted with existing facilities nd limited design flexibility, or if rought in late in the project when rinciples have been finalized, then ne engineer must exercise consider- ble skill in formulating successful commendations.

It has been shown that parking rovision can be estimated and the treet system can be analyzed to ndicate its suitability to handle the rojected traffic. Insufficient capaci- y on the street system (after taking nto account the influence of public transit) will likely have adverse effects upon attendance so that the analyses described will indicate the necessity of improving the street system, either by conventional traffic engineering or construction of new facilities to serve the stadium.

Location of the stadium close to mass transit service is of great importance, if it can be realized, and often a downtown site will offer such an advantage. A downtown location also facilitates multiple uses of the site with proximity to hotels, restaurants and major people generators a key consideration.

acknowledgement

The traffic planning studies reported here were undertaken as part of macro-planning studies required by Inner Harbor Management, Inc., Baltimore. Members of the Environmental Design System (EDS) team contributing to the traffic planning aspects were Shelter Development Corporation (Project Developer), Frederic R. Harris Inc. (traffic engineering) and Kenzo Tange and Urtec (urban planning/architecture).

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Kearney: Management Consultants

Foreword

Only one thing is sure: change. Successful managers try to anticipate change, plan for it, adapt to it, make it work for them.

Still, true genius is rare. Success is seldom sustained for long by a lone individual.

Assisting competent managers of successful organizations in solving problems and attaining goals has been the chosen profession of Kearney Management Consultants for many years.

Kearney is today one of the large, highly regarded, international management consulting firms serving clients in the public and private sectors in major nations of the world. Some of the reasons for this are presented on the following pages.

CHICAGO / NEW YORK / WASHINGTON / SAN FRANCISCO / LOS ANGELES / CLEVELAND / PHILADELPHIA
AMSTERDAM / BRUSSELS / DUSSELDORF / LONDON / MILAN / PARIS / STUTTGART / TOKYO / TORONTO

Why Use Kearney?

Successful managers of all kinds and sizes of organizations have been using the professional services of Kearney Management Consultants since 1926.

These executives have learned from many years of experience that Kearney consultants can provide valuable assistance in identifying and solving a variety of management problems.

The principal reasons that Kearney is engaged to assist its clients are because it brings to each engagement the following values:

Objectivity that is competently and impartially maintained and is not influenced by partisan points of view or personal vested interests, prejudice, and outworn traditions. Kearney can be totally objective because it is owned entirely by its key executives and, consequently, is independent of any outside influence.

Experience gained in analyzing and solving similar problems for other organizations. While no two problems are exactly the same, proven techniques can be successfully adapted to new situations. Experienced Kearney consultants have many years of broad exposure to management problems. They are backed up by the accumulated expertise, specialized skills and information resources of the entire Firm, built up over nearly half a century of service to management. This experience is augmented by dynamic growth with the continuous addition to the staff of consultants trained in the most advanced management techniques.

Understanding, not only of the technical and quantitative aspects of a problem but, more importantly, of sensitive human situations that are so often crucial to the solution of management problems. Kearney consultants are conscious of the fact that improvement seldom occurs unless human beings are persuaded to appreciate sensible innovation and modify their habits as new conditions require. The Firm tries in every way to make the outcome of each assignment a client achievement rather than a Kearney achievement.

Time to concentrate fully on solving the problem in hand without the constant distractions of day-to-day operations with which the client contends. Often, many important and major problems are neglected merely for the lack of sufficient management time to give them the serious attention they deserve. In other cases, consulting expertise is needed only for a short time to cope with unique or seldom encountered situations, where it would be uneconomical for the client to staff up internally.

Innovation, by introducing new concepts and techniques into the client organization. As an independent advisor, Kearney is in a unique position to help bring about substantial changes and point out new directions. The Firm has a natural interest in difficult and challenging problems, in analyzing them, and in creating effective new solutions. Frequently, Kearney acts as a catalyst to help draw out, articulate and implement the many worthy ideas that lie dormant in any organization.

How Kearney Works

Kearney's efforts to advance its practice conform with the highest ethical standards of the management consulting profession. It is a Firm tradition that sound consulting service must be bought . . . not sold . . . and that the basis of a truly satisfying client relationship is mutual confidence, integrity and respect.

Kearney's growth depends upon repeated use by, and the endorsement of, its clients. It is pleased that the large majority of its work is for clients served previously, attesting to their regard for the quality of its services and the values realized through previous counsel.

Kearney is normally invited to consider a specific situation by the board of directors, the chief executive officer or another key executive of the client organization.

Specific Project is Best

Experience has proved that a successful consulting assignment is usually built around a specific and well-defined project. The first effort in every Kearney engagement is to develop a clear understanding with the client of the scope and nature of the specific problem under discussion.

Once the problem has been accurately identified and its apparent solution found to be within the range of Kearney skills, a written proposal is submitted.

The proposal sets forth definition and limits of the assignment, steps required for solution, and the anticipated time and cost of completing the work.

Until the proposal has been accepted and work begun, the client incurs no financial obligation to Kearney.

Each engagement is conducted under the overall direction of a Kearney officer and the immediate supervision of an experienced engagement manager. This serves to ensure the quality of the work.

Client Involvement Helpful

The most successful engagements are often the result of a high degree of teamwork between client personnel and Kearney consultants. Kearney relies on client personnel wherever practical to develop pertinent statistical and factual data.

The consultant's contribution is best utilized in helping guide fact-gathering tasks . . . in overall supervision and planning of the study . . . in analyzing and interpreting findings . . . and, in particular, developing sound recommendations.

In staffing an assignment, consultants having appropriate capabilities in various functional areas, technical specialties and specific industries are organized, together with participating client personnel, into task groups. These provide the requisite mix of client input and consultant functional, technical or industry-related skills.

Such staffing ensures thorough handling of each aspect of the problem, balanced results and a solution tailored to the client's unique situation. The understanding gained by client personnel participating in the work results in a lasting commitment by these people to new and constructive courses of action.

Implement Recommendations

Kearney is results-oriented. It stresses at the outset that an engagement will only be successful if the recommendations, when accepted, are implemented effectively. The Firm takes particular pride in its reputation for helping clients to "make it happen." In most cases, clients ask Kearney to program and monitor the implementation phase to successful completion.


KEARNEY
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The Professional Staff

Kearney's prime resource is its group of competent and experienced professional management consultants. They are invited to join the Firm only after demonstrating advanced academic training, superior ability and previous successful management or professional experience. In addition, each has a strong personal commitment to management consulting as a career. The entire staff is thus well grounded in both the theoretical and the practical elements of management.

This rich diversity of academic, professional and managerial backgrounds allows Kearney to offer expertise in the advanced techniques of most functional disciplines as well as experienced counsel on all types of management problems.

Generalists And Specialists

Achieving solid, practical results for the client depends on an appropriate balance of inputs from the generalists and the specialists of Kearney's staff. The generalists provide innovation, wide perspective and broad understanding of organizational relationships and the management process. The specialists lend expertise in specific management problems and a profound knowledge of particular technical and industry disciplines.

All staff members serve initially in one of the functional or technical areas of management consulting or as industry specialists. Many progress with experience to broader, more complex areas of consulting and leadership positions. Others concentrate in one or more fields of special interest throughout their consulting careers.

Consultants Keep Skills Sharp

In addition to client assignments, many Kearney consultants conduct in-house research to advance the state of the art and science of management. This enables them to maintain their positions in the vanguard of management technology.

They also prepare technical papers, write books on management skills and problems, and provide leadership to many professional organizations through lectures, workshops and seminars for management at all levels.

Kearney's key people in the United States are members of the Institute of Management Consultants, Inc., and as such are qualified as "Certified Management Consultants." The Firm has a Charter Membership in the Association of Consulting Management Engineers in the United States and its British operation is a member of the Management Consultants Association in the United Kingdom.

Kearney's staff is supported by extensive library services, organized to serve the bibliographic and information requirements of client and research assignments. A computer software library is also maintained for use in solving client problems and conducting in-house research.

Kearney is Socially Responsive

In addition to serving its clients, Kearney, as a Firm, recognizes its obligation to be a good corporate citizen of all the communities in which it operates. It backs this commitment not only with significant monetary contributions to worthy causes, but also with the time and the leadership talents of its top people.

Additionally, all Kearney consultants are strongly encouraged to volunteer to serve in appointive or elective leadership positions in various community, social and charitable organizations, wherever they see unmet needs and believe they can make worthwhile contributions.

Kearney Services to Management

Kearney engagements may be broad in scope or confined to a single functional or technical area of study. The following are some of the more typical types of assignments Kearney regularly undertakes for its clients:

Planning—Helping the client formulate overall goals and objectives, both long-term and short-range, and developing strategies and tactics for achieving them. This includes counseling on mergers, acquisitions, joint ventures and divestitures.

Organization—Providing guidance in structuring the client organization to create the operating framework that will function most effectively to achieve established objectives.

Recruiting—As a separate element of its practice, Kearney recruits and evaluates executive and professional talent to provide a continuity of dependable top management and ample availability of the skills and expertise needed for success.

Finance—Aiding in the optimum allocation of organizational resources and maximizing return on investment and/or services provided, including establishment of effective budgeting systems and financial controls.

Marketing—Helping clients develop marketing plans, research industrial customer or user demand, determine marketing strategies, tactics and distribution channels, and structure and train the marketing organization.

Operations—Assisting in improving operations and profitability by increasing productivity and eliminating what is unnecessary and unprofitable.

Facilities—Providing expertise in planning and developing new facilities and modernizing and expanding existing facilities.

Quality—Interpreting market requirements and product safety, liability and consumer protection legislation into competitive product quality strategies and developing total quality assurance programs.

Research and Development—Counseling on prudent allocation of resources and establishment of controls for successful management of the technological and scientific aspects of research and development activities.

Personnel—Helping create working environments that stimulate and motivate people to strive together for the benefit of the organization, while enabling each person to enjoy a high degree of personal fulfillment.

Systems—Developing manual and computerized information systems that interpret data and deliver the right facts, at the right times, in the right formats, at reasonable cost to appropriate individuals, enabling each to take clear, well-informed actions.

Logistics—Counseling on all management aspects of the total flow of materials in the production/distribution systems from material procurement through to the final delivery to customers.

Materials Handling—Assisting in engineering materials handling systems related to warehousing, transportation and movement of goods, evaluating alternative handling systems, and developing innovative handling devices in warehousing, in terminal operations and in specialized trucks and rail cars.

Operations Research/Management Science—Applying advanced mathematical techniques to management problems, enabling management to get answers to "What if?" questions, and providing capabilities through mathematical modeling and simulation to look at operations as a whole and to see the effects of changes in individual elements of the total system.

Kearney Clients

Kearney serves hundreds of the world's largest business and public organizations as well as thousands of medium sized and smaller ones. Its clients are a cross section of many national and international economies, including:

Manufacturing and Processing

The Firm is often afforded particular recognition for its historic specialization in most of the basic manufacturing and processing industries.

Transportation

Kearney is the leading management consulting firm in the field of transportation, serving many carriers in all modes as well as users of transportation services.

Distribution

Clients include many large retail stores and chains, wholesalers, and mail order companies, as well as manufacturers and other types of organizations engaged in the distribution of products and services.

Associations

Kearney assists hundreds of trade and professional associations in meeting a multiplicity of objectives, conducting workshops and seminars, and serving their members.

Financial Institutions

Banks, insurance companies and other financial institutions use Kearney skills to plan overall business and diversification strategy, develop marketing plans, improve operations and increase profitability, especially in the electronic data and paper processing areas.

Health Services

Kearney has an extensive management consulting practice in the health field both in the U.S. and overseas. Its staff specialists in this area serve hospitals of every type and size, both public and private, in addition to other health-related organizations.

Government

The Firm provides its full range of consulting services to government agencies operating at all levels—local, State and Federal in the U.S., and in many other countries. Engagements have been undertaken in almost every aspect of government, ranging from environmental, econometric and systems design studies to evaluations of sophisticated weapons systems, organizational structures, and health care systems. Major physical distribution and facilities planning studies have been conducted for the U.S. Postal Service and other government agencies.


BRUNSHAUSEN
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Management's New Problems

Today's business manager is confronted with a host of new problems requiring understanding, knowledge and skills not generally required for managing a business even ten years ago.

Many of these problems are not totally new, but they have been brought into sharper focus by recent government legislation and international events in political, trade and social spheres.

For example, competition and cooperation among nations and trading groups, in markets old and new, are intensifying. Traditional barriers to the flow of goods and services are changing. Organizations of all kinds are rapidly becoming international in scope.

New concerns for the environment . . . evolutionary social values and attitudes . . . the changing nature of the work force . . . the shift to a service economy . . . employee safety and health . . . job enrichment . . . minority employment . . . the growing need to manage knowledge workers . . . consumer protection . . . the continued advance of technology . . . and the "systems approach" to most everything . . . these are but a few of the newer problems management faces now and in the years ahead.

Kearney is Ready to Help

Kearney continually equips itself to assist client management in its understanding, planning and implementation of programs in these newer areas. For example, it has recently undertaken many studies in the areas of air and water pollution control, both for industry and government. International marketing, employee safety and product quality assurance are other areas of increasing consulting activity.

Kearney has found that appropriate combinations of time-honored techniques and new, highly imaginative approaches are required to serve today's management in these new problem areas. The Firm continues to find and demonstrate improved techniques to serve its clients today as well as tomorrow in the traditional as well as the newer problems facing management.

Multinational Operations

To assist clients in taking advantage of the new opportunities in the changing world environment, all of Kearney's offices outside the United States are staffed to provide the total range of the Firm's skills and experience. These services are provided both to companies based in those countries and to foreign firms operating in the territory.

Consultants are Multilingual

Kearney's services are provided mainly by nationals of the country in which they are based, although many are multilingual and have extensive work experience in the U.S. and other countries. They are intimately acquainted with the people, languages, customs and business practices of the countries in which they work. The knowledge and experience of the Firm as a whole is available to clients in each country.

This combination of nationals, who are at home in the environments of their native countries, and Kearney's worldwide experience and facilities yields optimum results for multinational clients. Of particular value to multinational clients are Kearney services in global marketing strategy.

Where Kearney Serves

Kearney's parent headquarters are located in Chicago. From here the Firm serves Central U.S., Mexico and Central and South America. Additional North American office locations are: Washington, D.C., New York, Philadelphia, Cleveland, Los Angeles, San Francisco and Toronto.

European headquarters are in London. "Full-service" offices also are located in Amsterdam, Brussels, Dusseldorf, Milan, Paris and Stuttgart. Engagements in other European countries are staffed from these offices.

The various countries in Africa and the Middle East are served by the most appropriate European or U.S. office.

In the Far East, an office in Tokyo serves clients in Japan and elsewhere in Southeast Asia.

A current listing of Kearney operations, addresses, telephone and telex numbers is given on the inside back cover.

Your inquiry regarding Kearney's management consulting services will be explored on a confidential basis, without incurring any obligation.


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L to r., the original partners John C. Parkin, Edmund T. Parkin and John B. Parkin.

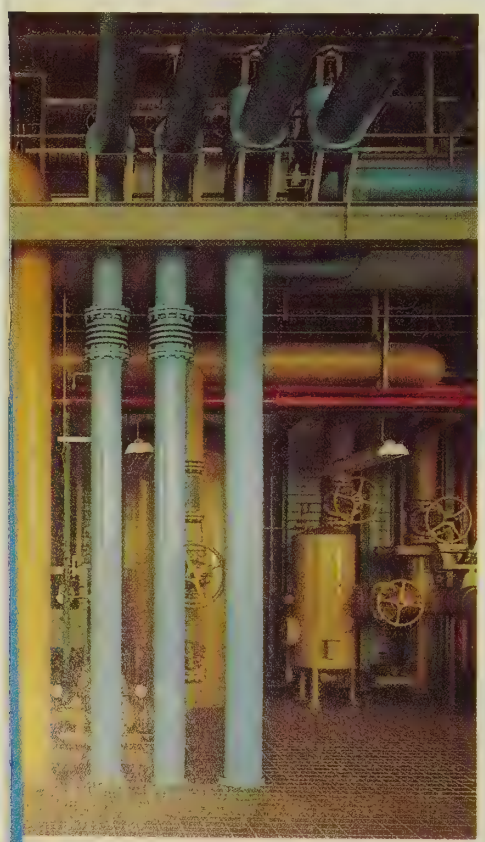
"This fortuitous combination of individuals of widely divergent personality, skills, and interests produced a highly competent professional firm that quickly became known as one of the most progressive in Canada. . ."

Parkin

By Thomas Howarth

I came to Toronto first in 1956 on the last lap of a 17,000 mile, year-long journey by car studying architecture in North America, its practice and philosophy. Henry-Russell Hitchcock, the distinguished American historian, had advised me to include Vancouver which, he claimed, was one of the most nteresting and progressive cities on the continent in terms of architecture and the ine arts; he was right! However, neither ne, nor anyone else, mentioned Toronto as of particular significance, so I allowed a day for it after visiting Frank Lloyd Wright at Taliesin East, Mies in Chicago, Saarinen in Detroit and Gropius at Harvard. Enquiries at the School of Architecture elicited the surprising nformation that there were only three good "modern" buildings in the city—the extension to the Park Plaza Hotel by Page and Steele (designed by the late Peter Dickinson); the Ortho Pharmaceutical Building, Don Mills; and the O.A.A. headquarters, 50 Park Rd. I discovered subsequently, of course, that this was not really an accurate statement. The two latter buildings, however, had been designed by one firm, John B. Parkin Associates, and at that time both were considered to be pace-setters in Canada.

Central Utilities building, Toronto International Airport, 1958, an early example of color coding in non engineering terms.



John B. Parkin (1911-1975), like most architects of his generation, was trained in the Beaux Arts tradition; he graduated from the University of Toronto in 1935, at a time when the effects of the great depression had virtually decimated architectural practice. He spent the following two years working in England and with an architect friend, the late John Layng, travelled extensively in Europe. On returning to Toronto in 1937, he set up in practice on his own—"John Burnett Parkin"—in a tiny office on Bay Street above the Toronto Builders Exchange. As his work increased in volume, he moved to 96 Bloor Street and then to 648 Church Street, before moving to 717 Church St in a building designed by John C. Parkin.

John C. Parkin (1922—), an honours graduate of the University of Manitoba, first joined John B. in 1944 and took leave of absence in 1946 to study at Harvard for a Master's degree under Walter Gropius. On January 1st, 1947, a formal partnership by John B. and John C. Parkin was established, which shortly thereafter was joined by John B's younger brother, Edmund (1912—), a landscape architect trained at Guelph Agricultural College, now the University of Guelph.*

This fortuitous combination of individuals of widely divergent personality, skills, and interests produced a highly competent professional firm that quickly became known as one of the most progressive in Canada, and in the 1950s and 1960's gained international recognition. The partners agreed that John B. would concern himself primarily with the firm's business interests; Edmund with its contract administration; John C. with its design—a division of responsibility that worked admirably. In contrast to many of their professional colleagues, they decided to devote themselves entirely to "modern" architecture—a version modelled on the teachings of Gropius and the Bauhaus school now dominating Harvard. In this context it is interesting to note that John C.'s friends and contemporaries at Harvard included the architects Ming Pei and Paul Rudolf, and, in another discipline, a certain Pierre Elliott Trudeau! The teachers and visiting critics included Marcel Breuer; Hugh Stubbins and Leslie Martin; Alvar Aalto and Catherine Bauer were at nearby MIT. The influence of the Harvard experience was profound and dominated the firm's work for many years. Moreover, a degree of continuity was assured by the Parkin's policy of employing master's graduates (preferably Ivy League) in their design section.

In the early days the effervescent dynamism of J. B. brought some rewards in a number of modest school buildings—some of concrete block and even of log cabin construction—in northern Ontario. This was arduous work requiring long hours of travel and not a little discomfort, but it provided a reasonably steady cash flow and eventually a financial base for the more diverse and lucrative commissions that were soon to follow—the T.T.C. Coach Terminal, Adelaide St., (since demolished) was the first large building in Toronto produced by the partnership. Their extraordinary success over the next few years earned the firm, still virtually unknown, a gold medal and four silver medals in the first Massey Medals for Architecture award programme in 1950—10 medals in all were awarded. By this time they had moved to larger premises on Church St. Subsequently, they leased in addition, converted space in an old warehouse, before their final move to their large, well-known, steel and glass building at Don Mills.

By the middle fifties, the Parkins' operational technique had been perfected and they were almost unassailable. John B., dapper, needle-sharp, tireless, was the epitome of the

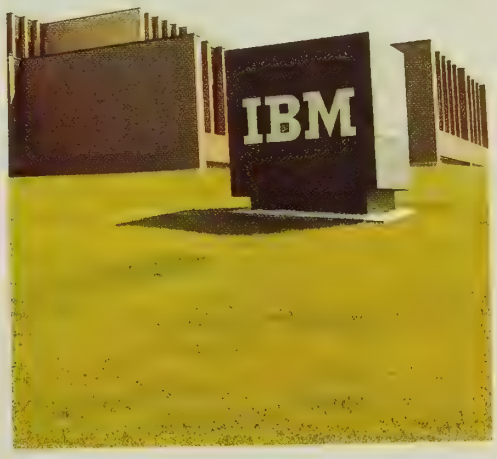
** John B. and John C. although bearing the same family name were not related. It is an interesting genealogical coincidence that John C.'s father and mother both bore the family name Parkin before marriage. John C. was born in England; however of a family which settled in Ontario in 1829.*

Safeco Insurance Companies, Mississauga, Ont., 1973. Interiors are open office.

Canadian businessman, with the added advantage of strong religious (Christadelphian) convictions; he sought out potential clients in the worlds of industry and commerce. John C. moved majestically through a different and more sophisticated milieu, establishing contacts within the realms of art and politics, and building up the credibility of the architect as a man with some cultural pretentions as well as the essential professional skills. All the Parkins made an outstanding contribution to cultural and charitable activities, and John C. in particular accumulated an impressive number of honours and awards.

Unquestionably the project that marked the real beginning of the Parkins' dramatic rise to national, and then to international stature was the headquarters building of the Ontario Association of Architects, won in competition in 1950. This building, completed in 1956, gave a clear and uncompromising indication of their intentions and reflects the influence of Gropius and the Harvard school. This is the building which in its unobtrusive elegance, careful handling of materials and details, and simple efficiency so impressed me at first sight in 1956, and which, 20 years later, remains one of the best buildings in the vast Parkin repertoire. The O.A.A. project was followed by Imperial Oil's Engineering Building at Sarnia, of welded steel frame like its predecessor, but in marked contrast light grey and sombre on the outside—sombre with the proportional competence of Mies van der Rohe whom John C. now claims had a greater influence on him than Gropius. In 1954 came the offices and research labs for Ortho Pharmaceutical (Canada) Ltd. at Don Mills, a dramatically original (for Canada) essay in white-painted, welded steel, with white glazed brick walls and a clean, elegant interior.

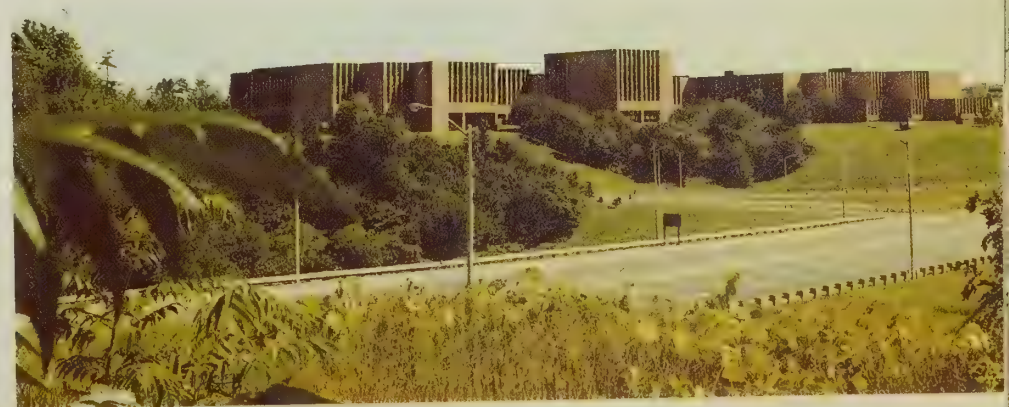
These three buildings were sufficient to establish the firm's reputation as leaders in a new international phase of the incipient modern movement in Canada, and many of the more adventurous younger members of the profession sought to join them. John B. once jokingly told me that he believed he had trained half the architectural profession in Canada. It is true that there was a prodigious turn-over of assistants in the Parkin organization; the partners were not easy to work with, but they had a loyal and dedicated nucleus of good people who continued to subscribe to the philosophy of the firm, maintained standards of performance, and ensured continuity.



Headquarters IBM Canada Ltd., 1965, Don Mills, Ont., graphics by Elliot Noyes.

However, the real breakthrough came in 1957 when the firm was given the commission to design a new international airport for Toronto. This $34,000,000 contract enabled the Parkins to greatly extend their operation and consolidate their plans for the future. Their brilliant solution to the complicated movement system, using a circular docking area for the aircraft, thereby ensuring a minimum walking distance for passengers, together with the centrally placed parking structure, was a demonstration of logical thinking that attracted world-wide attention. This compact building unit was called an "aeroquay" and there were to be four of them to complete the project according to the master plan. In fact, only one unit was built, probably because it was thought that the phenomenal growth of air traffic and the unprecedented rapidity of development of large capacity aircraft—the 747, for example—would render the circular form obsolete. It is a remarkable compliment to the Parkin firm that so small a part of the original project (despite some problems of vehicular circulation) which was designed for the Viscount and Vanguard era, is still capable of handling the large amount of international traffic—including 747s—that now flows through Toronto.

At Harvard John C. had observed how



Parkin

Gropius encouraged the collaboration of architect and artist, and he was able to persuade the Ministry of Transport to allocate one half of one percent of the airport cost to art work. This was the first time anything of the kind on so large a scale had been attempted in Canada. I served on the selection committee and can testify both to the difficulty of appraising the many sketches and maquettes presented by Canada's leading artists, and to the importance of the event in recognizing publicly the contribution of the artist to society.

While the airport was in the design stage, Viljo Revell, the Finnish architect, won the competition for Toronto City Hall (1956). According to the Ontario Association of Architects Act, a foreign architect is not permitted to build in the Province except through association with a member architect. Viljo Revell selected the Parkin firm, and their association extended through to the completion of the building in 1965, just before Revell's death. This close link with a distinguished European architect and his staff who lived and worked in Toronto, extended and deepened the firm's experience—and, of course, brought them still further international recognition.

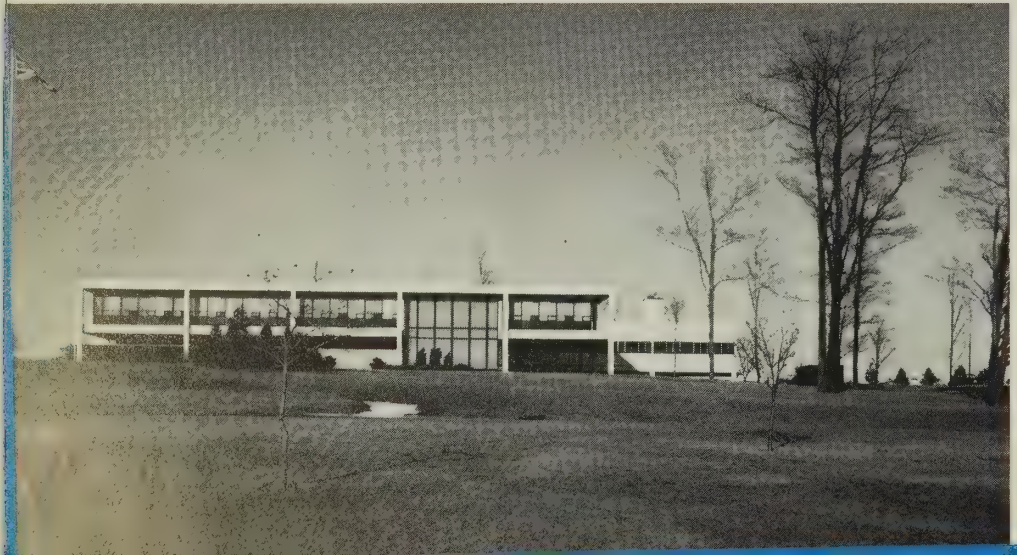
By the end of the 50's, therefore, John B. Parkin Associates had become the largest firm in Canada. Despite pressure from its influential cometitors it succeeded in attracting a wide variety of clients, mainly government and corporate bodies. A small selection of some of its better known buildings will best illustrate the range and character of its achievement.

Sun Life Building, Toronto, (1960); Imperial Oil Ltd., Regional Headquarters, North York, Ontario (1962); Domtar Chemicals Ltd., Goderich, Ontario (1963); Simpson's Yorkdale Shopping Centre, North York, Ontario (1964); Ottawa Union Station (1966); Department of Transport Headquarters (now Department of National Defense) 1966; International Nickel, Research Laboratory, Sheridan Park, Ontario (1966); IBM Canada Headquarters, Toronto (1967); and the adjacent office tower for the Robert Simpson Co. Ltd., (1968)—together with schools, hospitals, and a wide variety of other building types. In joint venture the Parkins' work included master plans for York and Brock Universities, together with a number of buildings for these institutions.

Edmund Parkin, the third of the founding partners, took early retirement in 1964, and since John B. had even then decided to move on to his "Second Career"* it was left to John C. Parkin to buy the building immediately to the south which they had designed for a semi-industrial use. That building, known as 1492, contained a further 10,000 sq. ft. of space and it, too, proved similarly and immediately adaptable for office purposes. It, too, became completely occupied with architects as well as the accounting offices in a relatively short period. By now the firm had its own computer resources at 1500 and, under the direction of Dr. Hedley Roy, developed a wide range of programs.

The firm's emphasis had now shifted To sustain so large an organization—they were almost 250 in Toronto alone—they were required to reach out to the rest of Canada for commissions, to the U.S. and abroad. John B. Parkin was by now commuting to Los Angeles and on the threshold of taking up permanent residence there. The Montreal office had become moderately successful with some 30 or 40 persons in Place Ville Marie. John C. had taken on the chairmanship of the Advisory Committee on Design at Expo '67 and was commuting to Montreal regularly. While still maintaining an active interest in

Ortho-Pharmaceutical Canada Ltd., 1954.



Simpson Tower in joint venture, 1964.

Etobicoke General Hospital 1966. The gift shop, the children's waiting room and a typical nursing station

design he appointed Douglas Rowland as partner-in-charge of Design.

In 1970 John B. Parkin left the firm of which he was the principal founder. Roy Marshall was to leave some three months later to join him in Los Angeles, while John Spence, their valued colleague in contract administration, had left somewhat earlier. John C. Parkin was to leave some five months later. Following a year of reorganization, the continuing partners ultimately became Neish Owen Rowland & Roy.

John C. Parkin adopted the style Parkin Partnership and reaffiliated with his namesake John B. Parkin in Los Angeles. Together with Parkin Engineers Ltd., Toronto, these firms continue today as the Parkin Group, each component of which has a differing profession and ownership.

John C. was responsible for the extensions to the Art Gallery of Ontario, including the special section to house the Henry Moore Collection which he was largely responsible for obtaining for Toronto. Of even greater significance, perhaps, was the success of the Parkin office in winning the important competition for the National Gallery, Ottawa (1977)—a very complicated and involved project that will take many years to implement. The National Gallery, however, is only one, albeit the most important, of a number of large projects being undertaken by the office.

The work of the Parkin firm during the sixties became diverse in character due, largely, to the influence of those bright young designers who were seeking alternatives to the Gropius-Mies tradition, and to the general philosophical uncertainty of the time. We now await with keen anticipation the future work of the Parkin Partnership and the Los Angeles office.

By John C. Parkin

A concept for the *practice* of architecture is of even greater importance than the concepts which that practice might produce, for without a clear concept for

This review of the work of the two Parkin partnerships will seek to comment on the "design" of structures and the arrangement of plans, rather than upon the science and systemization of knowledge within the building process. The practices concern those years from the end of the Second World War to the present. Like all those others who were there at the beginning of contemporary architecture in Canada, we were possessed with a quite extraordinary idealism. We really felt that buildings *could* enrich the lives of those using them. The pessimism so common today simply did not exist.

The death of Modern Architecture has been announced to us heavily and repeatedly from Arthur Drexler and on. The reports have been greatly exaggerated.

Like Rem Koolhaas,* I believe that the only truly revolutionary architecture of this century is an architecture of the metropolis. Any tragedy which may exist today lies in the fact that critics and professionals alike have been oblivious to the strengths of metropolitan and other urban forms, and to a premature pessimism over the fate of the metropolis. These urban forms should be perceived as a part of the beginning and of the birth, not of the decline of humane architecture. The natural evolution and

historicism.

The term "Modern Movement" has become a pejorative for some. I cannot recall our ever having used that particula term. For one thing, the concept of something being 'modern' I had always thought naive: for another, the notion of being part of a 'movement' I thought presumptuous.

We have no reason for pessimism. Architecture is no longer considered too dull a subject for polite conversation. Canadian buildings fit together better than ever before, in at least a dozen cities, and our cities are pulsing with a new excitement. It is my belief that an urban excitement has displaced the national one, and that local pride has quickened as national uncertainty has increased.

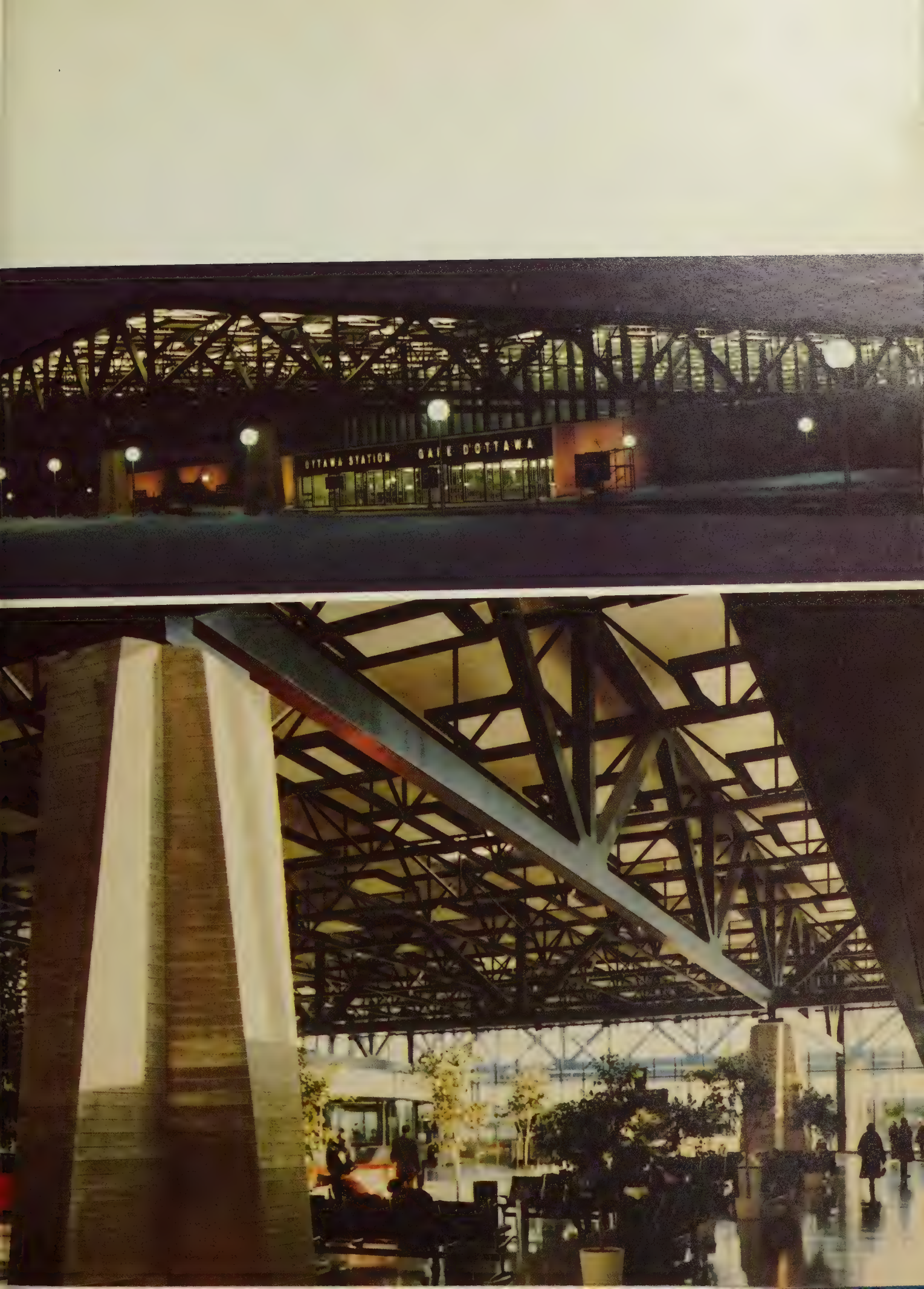
In preparing this I reviewed design notes papers and agenda, from 1947 to the present. This is then a reconfirmation of certain principles which I believe have held fast for 30 years. My firms were never highly mobile ones in the sense that a one-man practice could be. We have never apologized for this, for we have always viewed this as a positive virtue necessitating, as it does, our avoidance of the ephemeral. We have never used the arbitrary, what is unreasonable, illogical or irrational. We have sought clarity of plan, clarity of

Parkin

Transportation

Parking structure, Terminal 2, Toronto International airport, 1974, as consultants to Fenco-Barton, engineers.

Ottawa Union Station for National Capital Commission, 1962, main concourse.


OTTAWA STATION
GARE D'OTTAWA

Parkin

Private Residences/Offices

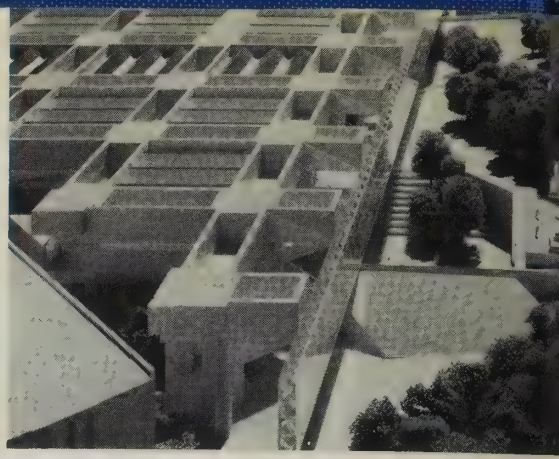
Residence of John C. Parkin, 1953, addition 1961.

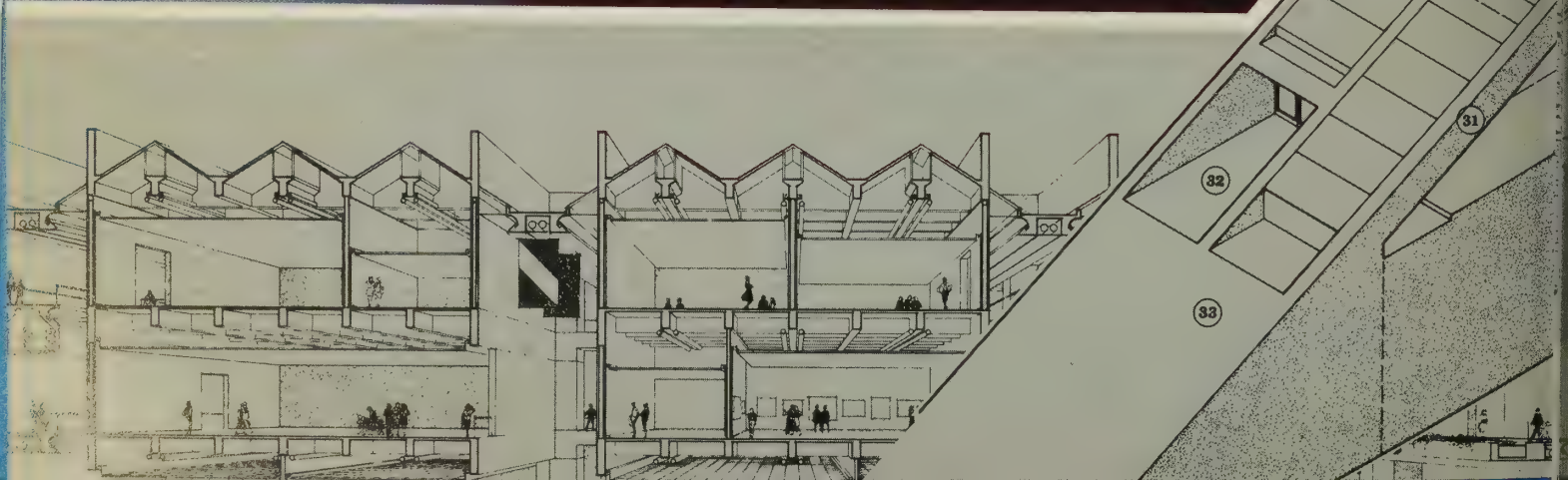
Architect's library and workspace.

Left, living room, paintings by Frank Stella, Molinari, Kenneth Noland. Below, paintings in detail of living room are by Harold Town, Bush, Gaucher.

Parkin

Cultural





National Art Gallery, Feb. 1976, models, plans and isometric.

Parkin

Cultural

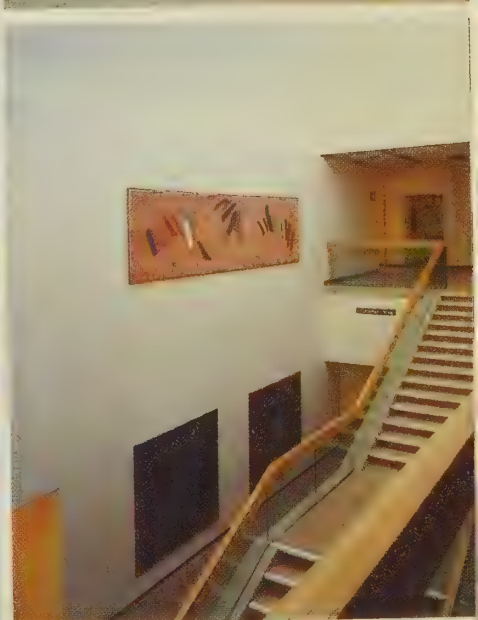
Art Gallery of Ontario, the Henry Moore Gallery.

CREDITS

Architects, Planners: **Parkin Partnership.**
Structural engineers: **Parkin Engineers Ltd.**
General contractor: **Mitchell Construction.**
Mechanical engineers: **H. H. Angus.**
Electrical engineers: **Alfons Kalns Associates.**
Lighting consultant: **William Lam Associates.**
Landscape architects: **Johnson, Sustronk, Weinstein & Associates.**
Project manager: **John Gordon Spence, FRAIC, consulting architect, Toronto.**

AGO, the Zachs Gallery, top.
Ago, sculpture by Michael Hayden in main foyer, below.
Top right, Canadian contemporary gallery.
Middle, entrance to Stage 2.
Bottom, activity centre, Stage 2.

Manville.
Lockets: **GSW**
Carpet: **Peterbilt Rug.**
Pilkington Glass
Aluminum, Slimlite.
Aluminum panel doors & frames: **C.P.I.**
Ceramic tile: **Delta.**



Parkin

Retail

SOURCES
Carpet: **Armstrong, CMC Gilt Edge.**
Furniture: **Klaus Nienkamper.**
Boardroom table: **Leif Jacobsen.**
Planting: **Luwassa.**
Millwork, installation: **Cameron McIndoo.**

CREDITS
Partner in charge: **John C. Parkin.**
Project architects: **Barry McFarquhar & Gastons Korulis.**
Interiors: **Pamela Bartzak & Lily Englar.**
General: **Cameron McIndoo.**
Mechanical: **Black & McDonald & Leslie Bros.**
Electrical: **Ainsworth Electric.**

Executive offices, Eatons of Canada.
Far left, executive dining area.
Middle left, private office.
Below left, reception seating area.
Left, corridor designed as art gallery, with lighting by Jack Chisvin.
Right, private office.
Below, principal boardroom.

Parkin

The creation of beautiful plans and the creative pleasure attendant to the process has always been fundamental to architectural art. We have sought to place each and everything in its appropriate place.

The expression of our structures has usually been clearly evident in both elevation and plan. The bizarre structural forms which have been fashionable from time to time have never been of our concern.

In the use of materials we have probably been doctrinaire in avoiding any arbitrary change of materials in the same wall plane, for example. We have always attempted to make materials do what is in their true nature. Our forms have been, I trust, a direct expression of plan and structure.

Our better buildings, the Ottawa Union Station, 1960, and the Aeroquay (Terminal I), 1958, for example, have always tended to accept the realities of convenience. In both these buildings the automobile was invited inside; surely a sensible notion in our climate. Both these buildings also demonstrate an idea which has always intrigued me, that is the interaction of the two most important materials of our age—steel and concrete in juxtaposition. The circular ring building of the Aeroquay is steel, and its exterior clad in metal: the central rectangular solid is of concrete and of composite design directly expressed as such. The Union Station follows in the great railway tradition of a conspicuous metal roof poised against symmetric one-storey pavilions, wholly concrete in design. I was once told that the success of the Union Station in Ottawa rested on the fact that it "looked like a station."

Architecture should enliven, ennoble and inspire, and not gratify nor glorify the banal. The doctrine of innovation for its own sake, founded on creative obsolescence, is a practice we have always resisted. Our budgets and programs are sufficiently spartan and austere, although our forms need never reflect an austerity.

In attempting to set an even course in design policy over these more than 30 years, I have counselled my clients to avoid the momentary and the merely fashionable. No hyperbolic-paraboloids, and thin shells only where necessary: no fortresses in concrete and, I trust, only a rare judgmental error in the overwhelmingly pervasive use of concrete in the sixties.

If I have a major regret it would be related to a lack of opportunity to work to a greater extent in wood. This was owed, in the main, to the fact that most of our commissions have been of an institutional or commercial nature and in urban settings with inhibiting codes.

Otherwise, my partners and I have been privileged to undertake work in almost every building type—the regrettable and principal exception being the high-rise residential apartment building.

We have always tended to agree with the idea that every problem must be solved in an entirely radical way and believe, as others do, that the practice of architecture involves an accumulating sum of experience, the "softwear" of design method as well as the "hardware" of building technique.

If I brought anything back to Canada at the end of 1946 from Gropius and from Harvard it was the notion that "efficiency is one thing and the ethos of a business is another" and group practice—and with it a concomitant recognition of the contribution of the total "team". It would be impossible to identify all of those who made contributions to the various designs on these pages, for there might be well more than 1,000 persons. My various partners, commencing with the late John B. Parkin, are identified elsewhere in this review together with dates. To them, to my associate partners and associates, I am especially grateful.

For the greater part of this last decade, I have worked in much the same way as John B. did with my partners Jack Mar, Peter Warren and Donald Wilson, but in the somewhat more personal and intensive way possible with a smaller group of professionals.

"Parkin"—which I regard more a "word" than a name—is now associated with its fifth decade of practice in Toronto, in Canada and abroad. In the U.S., John B. Parkin, Jr. and my colleague of more than 20 years, Roy Marshall, conduct a successful practice from Los Angeles as Parkin Architects Engineers Planners.

A vital group of younger architects and engineers, both in Los Angeles as well as here, make an increasingly unique contribution to the practice of architecture and to the related disciplines. Surely this is the greatest satisfaction of all, especially when taken with a striving and hope for the better environment.

**Rem Koolhaas is the Dutch-born, London trained, New York architect who is a member of the Office for Metropolitan Architecture (OMA)*

FOUNDING DATES,

Partners (past & present), dates of partnership changes, with respect to previous partnership & with respect to present Parkin partnership:

PREVIOUS PARTNERSHIP

JOHN B. PARKIN ASSOCIATES	
John B. Parkin	*January, 1947*
John C. Parkin	*January, 1947*
JOHN B. PARKIN ASSOCIATES	
John B. Parkin	*January, 1947*
John C. Parkin	*January, 1947*
Edmund T. Parkin	*March, 1947*
JOHN B. PARKIN ASSOCIATES	
John B. Parkin	*1959-1968*
John C. Parkin	*1959-1968*
Edmund T. Parkin	*1959-1964*
Edward R. Wilbee	*1959-1968*
John G. Spence (deceased)	*1959-1968*
John E. Owen	*1959-1968*
Roy F. Marshall	*1959-1968*
H.E.H. Roy	*1959-1968*
D.C. Rowland	*1959-1968*
R.V.B. Burgoyne	*1959-1968*
J.E. Mews	*1959-1966*
PARKIN ARCHITECTS ENGINEERS PLANNERS	
John B. Parkin	*1968-1970*
John C. Parkin	*1968-1971*
Ernest J. Smith	*1968-1971*
James E. Searle	*1968-1971*
Edward R. Wilbee	*1968-1971*
Dennis H. Carter	*1968-1971*
John E. Owen	*1968-1971*
Roy F. Marshall	*1968-1970*
H.E.H. Roy	*1968-1971*
D.C. Rowland	*1968-1971*
W.J. Neish	*1968-1971*
Brian Bancroft	*1968-1971*
J.B. Mar Part.-elect	*1970*
J.E. Sievenpiper Part.-elect.	*1970*
D.L. Wilson Part.-elect	*1970*
P.H. Warren Part.-elect	*1970*

PRESENT PARTNERSHIP

PARKIN ARCHITECTS PLANNERS	
John C. Parkin	*January, 1971*
J.B. Mar	*March, 1971*
P.H. Warren	*March, 1971*
D.L. Wilson	*March, 1971*

Partnership restyled in 1976 as PARKIN PARTNERSHIP ARCHITECTS PLANNERS with same partners.

TERMS OF REFERENCE

STADIUM/ARENA FEASIBILITY STUDY

For a number of years many citizens, local groups and members of the business community have expressed the opinion that the City of Hamilton should have Arena facilities suitable for major spectator events and, more recently, it has been brought to our attention that the Stadium Facilities should be expanded to provide for additional seats between goal lines to remain competitive with the other major municipalities in Canada. Additional information on the historical background will be available for review on request.

The City of Hamilton invites proposals from qualified Consultants for a complete examination of all the pertinent considerations for the adequate and future needs of the community.

It is intended that this study would be exhaustive and complete so as to determine the present and future needs. In addition, the study is to provide the possible alternatives to meet those needs.

It should be understood that this study will also be the basis for submissions to be made subsequently to Senior Levels of Government for cost-sharing. Therefore, this study should examine and document other cost-sharing arrangements which have been made in other Canadian Cities.

This study is to be:

(A) Completed by 3 September 1980

(B) Undertaken in two stages:

(1) The first would examine site selection alternatives, market analysis, capital costs, financial projections and economic, cultural and recreational impacts.

(2) The second (contingent upon the findings of the first) would focus on the preferred sites and would refine the market, financial and other stage-one analysis in relation to these sites. It would, furthermore, be extended to include detailed suggestions for design and operations.

The stage-one analysis of site alternatives would question the desirability and viability of the proposed Stadium/Arena from a "public interest" perspective.

This study shall include a review and recommendation as to the feasibility of constructing a combined Arena/Stadium facility or separate facilities on the sites reviewed.

The research would include presentation of pertinent facts, statistics and data relating to existing comparable stadia and arenas in Canada and the United States.

The following factors are required to be considered and the Consultant must identify which of these factors, along with additional factors deemed necessary or desirable by the Consultant, will be included in Stages 1 and 2 of the study.

.development factors
- availability and ownership of land
- size of site required
- land aquisition costs
- site development costs
- availability of municipal services

- size and shape of structure
- seating capacity

.environmental factors
- parking requirements - on site/off site
- availability of public transportation facilities
- compatibility with nearby development - present and future

.market factors
- identification of existing and potential markets (users) on a year-round basis
- identification of resident and visitor requirements
- potential professional sport and league requirements

.financial analysis
- revenue and expense projections
- income and cash flow projections
- building costs
- operating costs
- funding sources

.economical factors
- jobs created
- income generated to community
- benefits to service industries
- income generated to the City of Hamilton i.e. taxes, licensing fees,etc.

.social factors
- private or public ownership and management
- public acceptability
- neighbourhood and regional impact
- impact on amateur sport
- impact on recreational opportunities

The City proposes to appoint a Committee of elected officials and staff to oversee this study. The successful Consultant will be required to work under the direction of this Committee and to provide progress reports as the study progresses.

The proponents will be required to submit the following:

(A) A detailed outline of the method under which this study would be undertaken. This outline to include:

(i) A suggested procedure to receive input from the public and outside agencies and the extent of this participation. This procedure is to include public input regarding social and economic impact for the short list of potential sites.

(ii) A suggested procedure to obtain the input of the other levels of Government and the extent of their participation.

(iii) A schedule of the type and method of reporting to the Committee.

(B) An outline of the principals and their background for those who would undertake the responsibility for the various phases of the study and provide written assurance of its completion.

(C) An outline of the experience of the company or companies involved and of the individuals who would undertake the study.

(D) A fixed cost for the completion of the assignment and an outline of the method of payment.

(E) An estimate, if any, of the assistance required by the City.

Sealed proposals addressed to J. R. JONES, ESQ., Secretary, Board of Control, City Hall, Hamilton, Ontario, will be received up to 11:00 o'clock, a.m. (E.D.S.T.), Wednesday, June 18, 1980, for the above. For additional information, contact Mr. J. J. Schatz, Office of the City Clerk, City Hall, Hamilton, Ontario, telephone number 416-527-0241, extension 337.

June 6th, 1980.